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DEN NORSKE NORDHAVS-EXPEDITION

1876—1878.

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ZOOLOGI.

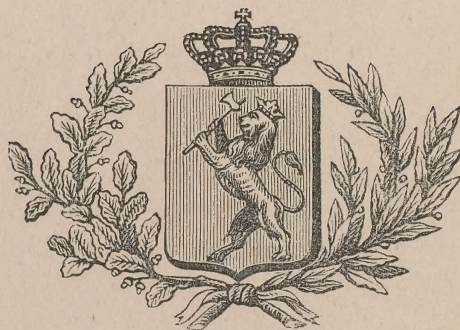
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SPONGIADÆ,

VED

G. ARMAUER HANSEN.

MED 7 PLANCHER OG 1 KART.



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CHRISTIANIA.

GRØNDAHL & SØNS BOGTRYKKERI.

1885.



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Zool.

THE NORWEGIAN NORTH-ATLANTIC EXPEDITION  
1876—1878.

ZOOLOGY.

SPONGIADÆ,

BY

G. ARMAUER HANSEN, M. D.

WITH 7 PLATES AND 1 MAP.



CHRISTIANIA.  
PRINTED BY GRØNDAHL & SØN.  
1885.







Samtlige Svampe vare opbevarede paa Alkohol; nogle faa vare indtørrede paa Grund af Karrenes mindre fuldstændige Lukning og Alkoholens deraf følgende Fordampning. Paa en hel Del Etiketter er Paaskriften skeet med Anilin-Blæk, saa den for Tiden er ulæselig, og det er for-gjæves forsøgt at fremkalde denne igjen ved forskellige Midler. Følgen heraf er, at Findestedet ikke kan angives for en hel Del af de beskrevne Svampe.

Hvorvel Svampene i det Hele er vel konserverede, har det dog ikke været mig muligt af en eneste at faa Præparater, paa hvilke jeg kunde faa Rede paa Kanalsystem, eller overhovedet paa Bløddelenes Struktur. Det eneste Holdepunkt for Svampenes Bestemmelse har derfor været Kiselnaalenes Form og Anordning. Den ydre Form giver, som bekjendt hos disse Dyr, kun i ganske faa Tilfælde mere eller mindre paalidelige Holdepunkter. Kiselnaalenes Form og Anordning synes derimod at maatte kunne bruges som Grundlag for en systematisk Inddeling. Det her behandlede Antal Svampe er imidlertid for lidet til at grundlægge et System paa, og jeg indskrænker mig derfor til at ordne Materialet efter Kiselnaalenes Form, og vil jeg, hvor det har lykkets mig at identificere en Form med en allerede tidligere beskrevet, benytte dennes Navn.

Det er ellers i Regelen yderst vanskeligt, for ikke at sige umuligt, at kunne henføre noget af de undersøgte Dyr til en allerede beskreven Form, specielt gjælder dette de af Bowerbank beskrevne; indenfor den samme Slægt forekommer hos ham saa forskellige Kiselnaaleformer, og samme Naaleformer findes hos forskellige Slægter, saa det bliver aldeles umuligt efter Naaleformerne alene at finde frem i Bowerbanks System. Og heller ikke er Bowerbanks øvrige Karakteristik af Slægterne af den Beskaffenhed, at man kan finde sig tilrette ved Hjælp af samme, og jeg har derfor ganske maattet opgive at finde Rede i Bowerbanks System. Om to Svampe har sine ens spids-spidsse Naale ens anordnede, men der hos den ene af dem til disse Naale kommer en anden Sort, saa bliver det et Spørgsmaal, om Anordningen eller Naaleformerne skal ansees som det væsentligste til at karakterisere Slægten, og

All of the sponges were preserved in alcohol; a small number of them were shrunk, however, owing to the incomplete closing of the vessel that contained them, and consequent evaporation of the alcohol. The superscription on a large number of the distinguishing labels had been effected with Aniline ink, and these labels show, now, no trace of superscription, although several means have, subsequently, been attempted, in vain, to recall the writing. In consequence of this, it has become impossible, now, to state the habitat of a large number of the sponges.

Although, upon the whole, the sponges have been well preserved, it has not been possible, for me, to obtain preparations from a single one of them, in which I could trace out the canal system or, generally, the structure of the soft parts. The only definite feature, therefore, for the discrimination of the sponges, has been the form and arrangement of the siliceous spicules. As is known, the external form of these animals gives, in only quite a few cases, more or less trustworthy distinguishing characteristics. Upon the other hand; the form and arrangement of the siliceous spicules appear as if they might be used as a basis for a systematic classification. The number of sponges treated of in this report is too small, however, to establish a system upon, and I confine myself, therefore, to arranging the material according to the form of the siliceous spicules, and where it has been possible, for me, to identify a form with one already previously described, I will make use of the designation of that one.

It is, usually, however, extremely difficult, if not absolutely impossible, to assign any of the animals investigated, to a form previously described, and this is specially the case in regard to those described by Bowerbank. In his works we meet, included in the same genus, such divergent forms of spicules; whilst, also, we find the same spicular form in different genera; that it becomes quite impossible to trace out a path in Bowerbank's system, solely, by the spicular form. Neither are Bowerbank's other generic characteristics of such a nature, that we can see our way by the aid they afford, and I have, therefore, been obliged to relinquish the hope of assistance from Bowerbank's system. When two sponges have their uniform acute spicules similarly disposed, and when to these spicules there is, in one of them, added, also, another kind, it becomes, then, a question, whether the disposition of the spicules, or



i denne Henseende har Bowerbank, saavidt jeg kan skjønne, neppe nok ladet Naaleformerne faa en tilstrækkelig Vægt.

Oskar Schmidt forekommer mig ogsaa at lægge for megen Vægt paa Svampenes Bløddele og øvrige Bygning i Forhold til Naalenes Form; jeg har nemlig ikke kunnet finde noget karakteristisk i de undersøgte Svampes Bløddele; Sarkoden har jeg fundet dels uden enhver Antydning til Differentiering, dels tilsyneladende traadet, meget lignende et fibrillært Bindevæv; ved Hjælp af Karmin finder man i Sarkoden temmelig talrige smaa runde Kjerner, der imidlertid ikke bidrager til at give Sarkoden nogen bestemt Karakter, og det har derfor været mig umuligt i Sarkodens Beskaffenhed at kunne finde noget, der kunde tjene til at karakterisere Svampene. Jeg er derfor kommet til det Resultat, at alene Naaleformerne kan bruges til at karakterisere Svampene; og det forekommer mig, at man i Hæckels Behandling af Kalksvampene har det Forbillede, hvorefter man burde rette sig ved Inddelingen af Kisel-svampene. Kiselnaalene er det eneste ialfald nogenledes konstante Formelement, der kan tjene til et Grundlag for en systematisk Inddeling. Om man, ved at benytte den, ogsaa vilde faa et naturligt System, derom tør jeg ingen Mening have; men jeg tror for sikkert at kunne antage, at man ved deres Hjælp vilde kunne faa et System, i hvilket det lod sig gjøre at finde sig tilrette med nogenledes Lethed; og dette maa, efter min Mening, ansees som det foreløbige Desideratum. Som allerede nævnt er det Materiale, jeg har havt under Behandling, neppe stort nok til at danne Grundlag for en systematisk Ordning af disse mangfoldigtformede Dyr, og jeg indskrænker mig derfor til at ordne dem og beskrive dem efter deres Naaleformer, det eneste, hvori jeg har fundet et Holdepunkt.

Det tør vel hælde, at jeg kommer til at beskrive allerede kjendte Former under nye Navne; men da det Gebet, hvorfra disse Svampe er opfisket, er et hidtil saagodtsom aldeles uudforsket, saa tør det vel ogsaa hælde, at Mesteparten af de fundne Dyr virkelig ere nye for Videnskaben.

Til Betegnelse af Naaleformerne benytter jeg mig af de af Dr. Vosmaer angivne Formler<sup>1</sup>.

Svampenes ydre Form kan neppe spille nogen Rolle for deres systematiske Inddeling, men kan kanske delvis benyttes til Adskillelse af Arterne. Spiklernes Anordning forekommer mig ogsaa mestendels at spille en underordnet Rolle, hvorvel den for visse Formers vedkommende synes at være temmelig gennemgaaende ens.

Jeg begynder med Svampe med Naaleformel  $ac^2$

<sup>1</sup> Dr. G. C. T. Vosmaer: Versuch einer spongiologischen Stenographie i Tijdschrift der nederlandsche dierkundige vereeniging. Deel V. 1881.

their form, should be considered as the most material, in the characterisation of the genus, and in this respect Bowerbank has, so far as I can gather, scarcely laid sufficient stress upon the form of the spicules.

It also appears to me, that Oskar Schmidt lays too much stress upon the soft parts, and the other structure of the sponges, in relation to the spicular form. I have, for instance, not been able to find any characteristics in the soft parts of the sponges investigated; but have found the sarcode to be, partly, without any indications of differentiation, and partly, apparently, very similar to a fibrilous connective-tissue. With the assistance of carmine, there is found in the sarcode, rather numerous, small round nuclei, which do not, however, contribute to give the sarcode any definite character, and it has been impossible, for me, therefore, to find in the nature of the sarcode, anything which would serve to characterise the sponges. I have come to the conclusion, therefore, that the form of the spicules can, alone, be used to characterise the sponges; and it appears to me, that in Hæckel's treatment of the calcareous sponges we have, the prototype upon which we ought to proceed in the classification of the siliceous sponges. The siliceous spicules are, at all events, the only, somewhat constant form-element, which can serve as a basis for a systematic classification. Whether, by its use, we would also obtain a natural system; I cannot venture to express an opinion upon; but I think, I may, certainly, assume, that with its aid, we might obtain a system, in which it was possible to find our way with some degree of ease, and in my opinion this must be considered to be the preliminary desideratum. As already mentioned, the material which I have had under investigation is scarcely sufficient to form the basis of a systematic arrangement of these, so multitudinously formed, animals, and I confine myself, therefore, to classify and describe them, according to the form of the spicules, this being the only point which I have found to be characteristic.

It may happen, perhaps, that I come to describe, under new designations, forms already known, but as the field from which these sponges have been obtained, is one that, hitherto, has been almost entirely uninvestigated, it may also, therefore, well happen, that the greater part of the animals found, are really new to science.

To indicate the spicular form, I make use of the formulæ given by Dr. Vosmaer<sup>1</sup>.

The external form of the sponges can scarcely play any part in their systematic arrangement, but can perhaps be used, partially, in the distinguishing of the species. The arrangement of the spicules appears, to me, also, to play, principally, a secondary part, although, in regard to certain forms, it appears to be tolerably uniform throughout.

I commence with sponges having spicules of the form

<sup>1</sup> Dr. G. C. T. Vosmaer: Versuch einer spongiologischen Stenographie i Tijdschrift der nederlandsche dierkundige vereeniging. Deel V. 1881.



eller  $ac^2$  sp. Da jeg nu i den ældre Svampeliteratur ikke kan finde Svampe med denne Naaleformel samlede under et Navn og heller ikke anser mig berettiget til at danne et nyt Navn, samler jeg dem under Navnet *Reniera*, O. Schmidt, der synes mig at være den Slægt, hvorunder de med størst Ret kan indordnes. Den først omhandlede har imidlertid allerede faaet et eget Slægtnavn og er saa vel kjendt under dette, at jeg opfører den under samme Navn.

#### **Stylocordyle boreale, Lovén.**

Exemplarerne er af meget forskjellig Størrelse; Stilk-ken er paa nogle Exemplarer  $1.5^{mm}$  tyk og Hovedet  $1.5^{cm}$  langt og  $1^{cm}$  i Gjennemsnit; de mindste, fra Station 18, har en  $1.5$  til  $2.0^{cm}$  lang Stilk og et  $3-4^{mm}$  langt Hoved. Der forekommer baade den af Lovén som *Hyalonema borealis* opførte Form med et Osculum midt paa Hovedets øvre Flade, og den af G. O. Sars som *Hyalonema longissima* beskrevne Form med Osculum i Randen af samme Flade; men jeg er ikke istand til at finde nogen Forskjel mellem dem.

Jeg har ikke hos nogen fundet den af Sars beskrevne og afbildede Opdrivning midt paa Naalen med Forgrening af Axekanalene, og jeg antager derfor, at denne Naaleform neppe kan være andet end Udtryk for en lokal Variation og ikke tilstrækkelig til at begrunde en Artsforskjel.

#### **Findested.**

Station 18, 33, 40, 283, 312.

#### **Reniera simplex, n. sp.**

En pæreformig Sæk paa en temmelig lang Stilk; blød og løs i sin Struktur. Sarkoden bestaar af grønligfarvede Klumper, i hvilken der i alle Retninger gaar Naalebundter; samtlige Naale er  $ac^2$ , let krummede. Tab. I, Fig. 9 og Tab. VI, Fig. 1.

#### **Findested.**

Station 255. 2 Exemplarer.

$ac^2$  or  $ac^2$  sp. As, however, I have not found in the older works relating to sponges; sponges with this spicular formula, collected under one designation; and I do not consider myself entitled to form a new designation; I have collected them under the designation *Reniera* (O. Schmidt) which appears, to me, to be the genus to which they can with most show of reason be assigned. The first one treated of has, however, already obtained a generic designation of its own, and is so well known by it, that I present it under the same name.

#### **Stylocordyle boreale, Lovén.**

The specimens are of very various size; in a few of them, the stem is  $1.5^{mm}$  thick, and the head is  $1.5^{cm}$  long and  $1.0^{cm}$  in diameter. The smallest specimen; (from station No. 18) has a stem  $1.5^{cm}$  to  $2.0^{cm}$  in length, and a head 3 to  $4^{mm}$  in length. Both, the form specified by Lovén as *Hyalonema borealis*, with an osculum in the mesial part of the superior surface of the head; and the form described by G. O. Sars, as *Hyalonema longissima*, with an osculum in the margin of the same surface; occur, but I am unable to find any difference between them.

I have not been able to find, in any of them, the bulbous tumefaction in the middle of the spicule, with the ramification of the axis-canal, which has been described and illustrated by Sars; and I, therefore, presume, that this spicular form can scarcely be anything else than the expression of a local variety; and insufficient to form the basis of a specific variety.

#### **Habitat.**

Stations No. 18, 33, 40, 283, 312.

#### **Reniera simplex, n. sp.**

A pyriform bag, seated on a rather long stem; in structure, very soft and loose. The sarcode consists of greenish coloured lumps, in which, spicular fasciculi proceed in all directions. All of the spicules are  $ac^2$ , slightly curved. (Pl. I, fig. 9, Pl. VI, fig. 1).

#### **Habitat.**

Station No. 255. 2 specimens.



**Reniera oblonga, n. sp.**

Svagt gultfarvede pølseformige Svampe med en ujevn hullet og toppet Overflade, der kun indeholder  $ac^2$ , let krummede Naale, der krydse hinanden i alle Retninger. Tab. II, Fig. 5 og Tab. VI, Fig. 2.

**Findested.**

Station ukjendt.

**Reniera velamentosa, n. sp.**

En aflang, brun Svamp, meget løs i sin Bygning, med en Axe af noget fastere Konsistents, fra hvilken der udgaar Bjelker til en meget tynd Overfladehinde, i hvilken der findes talrige Aabninger i et Net af  $ac^2$  Naale. Der findes i hele Svampen kun saadanne Naale. Tab. I, Fig. 10 og Tab. VI, Fig. 3.

**Findested.**

Station 262.

**Reniera tubulosa, n. sp.**

Et Brudstykke af en Svamp, en Plade, paa hvilken der sidder 5 Rør af 2—3<sup>cm</sup> Længde; da disse Rør aabne sig paa Underfladen af Pladen, ser det ud, som om denne kun var en Del af en større Væg, der kunde have omsluttet en større Hulhed, ind i hvilken Rørene har havt sin Udmunding, idet disse sidste rimeligvis har været Svampens Oscula. Det bringer en til at tænke paa Rev. Normanns Beskrivelse af *Oceanapia Jeffreysii*<sup>1</sup>; men der findes i vort Brudstykke ingen bihamate Spikler, kun  $ac^2$  Naale. Tab. I, Fig. 12 og Tab. VI, Fig. 4.

**Findested.**

Station 1.

**Reniera membranacea, n. sp.**

Et temmelig stort, tyndt, gjennemskinnende Blad med hvidlige, toppede Fortykkelser. Det dannes af  $ac^2$  sp. Naale, der ligger temmelig tæt pakkede og krydser hinanden i

<sup>1</sup> A Monograph of the British Spongiadæ, Bowerbank. Vol. IV, pag. 171.

**Reniera oblonga, n. sp.**

Faint-yellow coloured, sausage shaped sponge, with an uneven, conically pitted surface, which contains only,  $ac^2$  spicules, slightly curved, and intersecting each other in all directions. (Pl. II, fig. 5, Pl. VI, fig. 2).

**Habitat.**

No record.

**Reniera velamentosa, n. sp.**

An oblong, brown coloured sponge; very loose in structure, and having an axis of somewhat firmer consistency, from which rods proceed to a very thin superficial membrane, in which numerous apertures forming a reticulation composed of  $ac^2$  spicules occur. Only such spicules are to be found in the entire sponge. (Pl. I, fig. 10, Pl. VI, fig. 3).

**Habitat.**

Station No. 262.

**Reniera tubulosa, n. sp.**

A fragment of a sponge, consisting of a plate upon which there are seated 5 tubes, measuring 2 to 3<sup>cm</sup> in length. As these tubes debouch on the inferior surface of the plate, it appears, as if the fragment was only a portion of a larger wall which may have enclosed a larger cavity in which the tubes have had their discharge; as they have, presumably, been the oscula of the sponge. This causes one to reflect on the Rev. A. M. Norman's description of *Oceanapia Jeffreysii*<sup>1</sup>; but in our fragment, no bihamate spicules are found, only  $ac^2$  spicules being visible (Pl. I, fig. 12, Pl. VI, fig. 4).

**Habitat.**

Station No. 1.

**Reniera membranacea, n. sp.**

A rather large, thin, translucent and soft sponge, with whitish conical tumefactions. It is formed of  $ac^2$  sp. spicules, which are placed, pretty closely packed together, and inter-

<sup>1</sup> A Monograph of the British Spongiadæ, Bowerbank. Vol. IV, pag. 171.



alle Retninger; de hvidlige Fortykkelser ere smaa Pyramider, der er opbyggede af samme Sort Naale og paa hvis Spidse der ingen Aabning kan opdages; muligens har Svampen ved Hjælp af disse været fæstet til sit Underlag. Tab. I, Fig. 11 og Tab. VI, Fig. 12.

#### Findested.

Station ukjendt.

De følgende Dyr har istedetfor Naale af Formelen  $ac^2$  saadanne med Formelen *trac*, altsaa stumpe i den ene Ende og spidse i den anden. De burde derfor kanske rettest opføres under et andet Slægtnavn end de foregaaende; men da der blandt de af Oskar Schmidt under *Reniera* beskrevne Dyr findes Former med stump-spidse saavelsom med spids-spidse Naale, saa beholder jeg dette Slægtsnavn ogsaa for disse Former.

#### *Reniera digitata*, n. sp.

En Svamp med fem lappeformige Forgreninger fra en fælles Stilk, temmelig blød og løs i Strukturen, har kun *trac* Naale, dels rette, dels krummede, enkelte dobbelt krummede. Tab. I, Fig. 5.

#### Findested.

Station 260.

#### *Reniera nivea*, n. sp.

Dels enkle Personer, dels Samlinger af saadanne paa tynde Plader; de enkelte Svampe er aflange, tildels pæreformige, dels cylinderformede, nogle aabenmundede, andre lukkede for Enden. Sækkens Vægge har en Tykkelse af omtrent  $0,5^{mm}$ , og inde i en af dem fandtes en kornet Masse, i hvilken der forekom spredte Kiselnaale, medens de andre var tomme. Væggene dannes af parallelt gaaende tykkere Naalebundter, udenpaa hvilke der findes tvertgaaende Naalebundter i nogenledes regelmæssige Afstande fra hinanden, men forresten krydsende hinanden under mere eller mindre spidse Vinkler. I de af disse Naale dannede Masker findes Huller, der gjenembore hele Væggen. Ytterst findes et Lag af korte Naale, der staar perpendikulært

secting each other in all directions. The whitish tumefactions are small pyramids, constructed of the same kind of spicules, and upon whose points no aperture can be detected. The sponge has, possibly, been attached by means of these to its original support. (Pl. I, fig. 11 Pl. VI, fig. 12).

#### Habitat.

No record.

The following animals, instead of having spicules resembling the formula  $ac^2$ , have spicules according to the formula *trac*, or blunt at the one extremity and acute at the other extremity. They ought, therefore, perhaps, with most show of reason, to be classified under another generic designation than the preceeding ones, but, as amongst those animals described by Oskar Schmidt under the designation *Reniera*, there are found forms of spicules with blunted points, as well as with acute points, I have retained this generic designation, also, for these animals.

#### *Reniera digitata*, n. sp.

A sponge having five lobate branches proceeding from one common stem; rather soft and loose in its structure. It has spicules of the formula *trac* only; partly straight, partly, in single curves, and partly, with a few spicules having double curves (Pl. I, fig. 5).

#### Habitat.

Station No. 260.

#### *Reniera nivea*, n. sp.

Occasionally, isolated individuals, occasionally, collections of them, upon thin plates. The isolated sponges are oblong, partly, pyriform, and partly, cylindrical: a few are open-mouthed, whilst others, again, are closed at the extremities. The walls of the bag have a thickness of about  $0.5^{mm}$ , and contained in one of the bags was found, a granular mass, in which scattered siliceous spicules appeared, whilst the others were empty. The walls are formed of parallel, thickish spicular fasciculi, outside of which, transversal spicular fasciculi are found, placed at somewhat regular intervals from each other, but, otherwise, intersecting each other at more or less acute angles. In the reticulation formed by these spicules; perforations occur, which completely pene-



paa de underliggende. Samtlige Naale er *trac* eller *tr<sup>0</sup>ac*; disse sidste findes dog kun i ringe Antal. Tab. I, Fig. 6.

**Findested.**

Station ukjendt.

**Reniera palescens, n. sp.**

En vifteformig, lysgraa, liden Svamp, i hvilken der kun findes *trac* Naale, Mesteparten mere eller mindre krummede, enkelte rent bueformige. Tab. I, Fig. 2.

**Findested.**

Station 8.

**Reniera dubia, n. sp.**

En brun, klumpet, blød Svamp, der sidder paa en Oculinastok. Den indeholder kun *trac*, *tr<sup>0</sup>2* og enkelte *ac<sup>2</sup>* Naale. De afstumpede Ender af Naalene er dels afrundede, dels tvert afskaarne og i begge Tilfælde forsynede med smaa Tagger. Tab. II, Fig. 1 og Tab. VI, Fig. 7.

**Findested.**

Station 270.

**Reniera infundibiliformis, n. sp.**

Tragtformige Bægere, der sidder fæstede paa en Algestilk, meget løse i Bygningen, bestaar af et aabent Net af *trac* Naale, dels rette, dels svagt krummede. Der fandtes en enkelt *tr<sup>2</sup>* og en *tr<sup>0</sup>ac* Naal. Tab. I, Fig. 7 og Tab. VI, Fig. 11.

**Findested.**

Station 201.

trate the walls of the meshes. Quite on the outside, there is found, a layer of short spicules, which is placed, perpendicularly, upon the subjacent one. All the spicules are according to the formula *trac* or *tr<sup>0</sup>ac*. The last, however, are only found in small numbers (Pl. I, fig. 6).

**Habitat.**

No record.

**Reniera palescens, n. sp.**

A fan-shaped, light-grey coloured, sponge; in which, spicules according to the formula *trac* are alone found, the greater part of them being, more or less curved; a few purely arcuate (Pl. I, fig. 2).

**Habitat.**

Station No. 8.

**Reniera dubia, n. sp.**

A brown coloured, lumpy, soft sponge, seated on an oculina stalk. It contains only *trac*, *tr<sup>0</sup>2*, and a few *ac<sup>2</sup>* spicules. The blunted extremities of the spicules are partly rounded, and partly, truncated, and in both cases, they are furnished with small aculeæ (Pl. II, fig. 1, Pl. VI, fig. 7).

**Habitat.**

Station No. 270.

**Reniera infundibiliformis, n. sp.**

Funnel-shaped chalices, situated upon an alga stem; very loose in structure, and consisting of an open reticulation of *trac* spicules, partly, straight, partly, gently curved. A solitary *tr<sup>2</sup>* and a *tr<sup>0</sup>ac* spicule was found (Pl. I, fig. 7, Pl. VI, fig. 11).

**Habitat.**

Station No. 201.



**Reniera complicata, n. sp.**

En lysgraa Svamp, tilsyneladende grenet, men snarere bladet, en sammenhængende flad Masse, paa hvilken der findes fremstaaende Kanter eller Blade paa begge Flader. Naalene er samtlige Stavnaale, men af temmelig forskjellig Form; dels  $ac^2$  tynde rette, bøiede eller mangfoldigt krummede, dels  $trac$ , temmelig tykke og svagt bøiede, dels  $tr^2$ , ligeledes tykke og svagt bøiede og endelig  $tr^0ac$  og  $trac$ , tynde, rette og almindeligt forsynede med en eller to kugle- eller halvkugleformige Opdrivninger. Tab. I, Fig. 8 og Tab. VI, Fig. 8.

**Findested.**

Station 84.

**Reniera inflata, n. sp.**

En liden hvid Svamp, der danner en Blære paa en hul Stilk; Blæren ved sin øvre Ende besat med flere koniske, hule Papiller, lukkede for Enden. Blærens saavel som Stilkens og Papillernes Vægge opbyggede af  $tr^2$  Naale, der krydse hinanden under omtrent rette Vinkler. Tab. I, Fig. 4.

**Findested.**

Station ukjendt.

De nu følgende Svampe, som jeg henregner til *Suberitidæ*, har samtlige Spikler af Formelen  $tr^0ac$  og kun saadanne. Jeg begynder med før beskrevne Former.

**Radiella sol, O. Schmidt.**

*Trichostemma hemisphæricum*, G. O. Sars.

*Halicnemia hemisphærica*, Marenz.

Oscar Schmidt har allerede gjort opmærksom paa, at hans *Radiella sol* er identisk med Sars's *Trichostemma hemisphæricum*. Efter Schmidts Beskrivelse og Figur i hans „Atlant. Spongien“ skulde man neppe tro dette; men Bergens Museum har faaet et Exemplar af *Radiella sol* fra Smithsonian Institution og ved at undersøge dette har jeg kunnet overbevise mig om, at begge Former virkelig er identiske. Fra Expeditionen foreligger der et Exemplar, der i Størrelse fuldkomment svarer til det amerikanske, medens Mesteparten er meget større. At identificere den

**Reniera complicata, n. sp.**

A light-grey coloured sponge, apparently branchy, but really rather leafy; a continuous flat mass, upon both of whose surfaces, protuberant edges, or leaves are found. All the spicules are rod-spicules, but of rather divergent form; partly  $ac^2$  spicules, which are thin, straight, curved, or corrugated; partly  $trac$  which are pretty thick and gently curved; partly  $tr^2$  also thick, and gently curved; and finally,  $tr^0ac$  and  $trac$  spicules, thin, straight, and usually, furnished with one or two spherical or semi-spherical protuberances (Pl. I, fig. 8, Pl. VI, fig. 8).

**Habitat.**

Station No. 84.

**Reniera inflata, n. sp.**

A small white sponge, forming a vesicle upon a hollow stem. The superior extremity of the vesicle is beset, with several conical hollow papillæ closed at the extremity. The walls of the stem, papillæ, and vesicle, are composed of  $tr^2$  spicules, which intersect each other at, nearly, right angles (Pl. I, fig. 4).

**Habitat.**

No record.

The sponges which now follow, I have assigned to the *Suberitidæ*. Their spicules are all according to the formula  $tr^0ac$ ; and these alone. I commence with forms previously known and described.

**Radiella sol, O. Schmidt.**

*Trichostemma hemisphæricum*, G. O. Sars.

*Halicnemia hemisphærica*, Marenz.

Oscar Schmidt has, already, called attention to the fact, that his *Radiella sol* is identical with Sars's *Trichostemma hemisphæricum*. According to Schmidt's description, and the illustration given in his „Atlant. Spongien“, this seems scarcely credible; but the Bergen Museum has obtained a specimen of *Radiella sol* from the Smithsonian Institution, and after investigating it, I have been able to satisfy myself that both of these forms are, really, identical.

During the Norwegian North-Atlantic Expedition, one specimen was obtained, which in size, quite corresponds



med Bowerbanks *Halicnemia*, som Marenzeller gjør, gaar derimod ikke an, hvis jeg skal dømme efter et Præparat af Spiklerne af *Halicnemia patera*, som jeg har faaet af Rev<sup>d</sup>. A. M. Normann.

**Findested.**

Station 29, 260, 323.

**Rinalda uberrima, O. Schmidt.**

Af denne Form er der fanget en Masse Exemplarer af meget forskjellig Størrelse, som det kan sees af Tab. VI, Fig. 19. Jeg henfører til denne Form en Svamp, som er afbildet Tab. VI, Fig. 10, skjønt den ikke besidder saa store Papiller som de øvrige Exemplarer, men dens Bygning forresten er ganske den samme som hos *Rinalda*, idet den har en tynd, 1—2<sup>mm</sup> tyk Skorpe af lysere Farve end Resten af Svampen, og som dannes af tætstaaende korte og tynde *trac* Naale (se Tab. I, Fig. 1).

Naalene ere for Størstedelen *trac*, ikke *tr<sup>o</sup>ac* som hos de øvrige Exemplarer af *Rinalda*; men der findes dog Overgangsformer til *tr<sup>o</sup>ac*, som det kan sees af Tab. I, Fig. 1, ligesom der hos *Rinalda* findes *trac* Naale og lignende Overgangsformer, som det kan sees af Tab. II, Fig. 8.

**Findested.**

Station 286.

**Thecophora semisuberites, O. Schmidt.**

*Thecophora elongata*, Marenz.

— *ibla*, W. Thomson.

Af denne Form er der ogsaa fanget en stor Mængde, og der findes alle Overgange mellem den af Marenzeller som *Th. elongata* opførte Form og den sædvanlige *Th. semisuberites*. I de mindste Exemplarer, der ere konisk tilspidsede, findes kun en Antydning til en Pudedannelse, idet der oppe i Spidsen findes en Del smaa Naale, der dog ikke danne noget sammenhængende Lag, men ligge spredt inde mellem de spidse Ender af de lange Naale. I lidt større Exemplarer findes allerede et tydeligt Lag af smaa Naale for Enden af Svampen.

W. Thomsons *Th. ibla* skiller sig fra *Th. semisuberites* kun derved, at de smaa Naale, der danne Pudene, staar

with the American specimen, whilst, the others are much larger. To identify *Radiella sol* with Bowerbank's *Halicnemia* as Marenzeller has done, is however, not possible, if I may judge from a preparation of the spicules of *Halicnemia patera* which I have obtained from the Rev<sup>d</sup>. A. M. Norman.

**Habitat.**

Stations No. 29, 260, 323.

**Rinalda uberrima, O. Schmidt.**

Of this form, there has been obtained a large number of specimens, of very various size, as may be seen from Pl. VI, Fig. 19. To this form I, also, assign a sponge which is illustrated Pl. VI, fig. 10, although it does not possess such large papillæ as the other specimens, but its structure, otherwise, is the same as in *Rinalda*, in so far, that it has a thin 1—2<sup>mm</sup> thick crust of lighter colour than the rest of the sponge, formed of closely-set, short, thin spicules of the *trac* formula (vide Pl. I, fig. 1).

Most of the spicules are *trac*, and not *tr<sup>o</sup>ac* as in the rest of the specimens of *Rinalda*; but there are, also, found transition-forms towards the *tr<sup>o</sup>ac* formula, as may be seen in Pl. I, fig. 1; whilst, also, in *Rinalda*, there are found *trac* spicules and similar transition-forms, as may be seen in Pl. II, fig. 8.

**Habitat.**

Station No. 286.

**Thecophora semisuberites, O. Schmidt.**

*Thecophora elongata*, Marenz.

— *ibla*, W. Thomson.

Of this form, a large number has also been obtained, and there are found, all transition-forms between the form *Th. elongata*, established by Marenzeller, and the usual form of *Th. semisuberites*. In the smallest specimens, which also, are conically acuminate, there is found, only an indication of a terminal cortical layer, in as much as, that up at the point, there is found a number of small spicules, which do not, however, form a continuous layer, but are found situated, dispersed between the acute extremities of the long spicules. In the larger specimens, there is already found, a distinct layer of small spicules at the extremity of the sponge.

W. Thomson's *Th. ibla* differs from *Th. semisuberites*, only, in this, viz. that the small spicules which form the



sammen i Bundter, hvad der foranlediger, at Pudren ser ud, som om den var dannet af smaa Papiller, medens den hos *Th. semisuberites* er glat.

**Findested.**

Station 29, 35, 125, 205, 257, 290, 292.

***Polymastia penicillus*, (Mont) Vosm.**

Vosmaer har i „Niederl. Archiv für Zoologi, Supplementband I“ givet en udførlig Beskrivelse af denne Art med Figurer, hvorfor jeg ikke indlader mig paa nærmere at karakterisere den. De indfangede Exemplarer er meget store, 7—8<sup>cm</sup> i Gjennemsnit.

**Findested.**

Station 267?

Spikelanordningen hos denne Art er nu akkurat den samme som hos de ovenfor nævnte Arter, størst er imidlertid Ligheden med *Radiella sol*, og det er visselig urigtigt at give disse Dyr forskellige Slægtsnavne. Vilde man tildele Konsistensen nogen Vægt som Slægtskarakter, kunde man henføre *Polymastia penicillus* og *Radiella sol* til en Slægt, *Rinalda uberrima* og *Thecophora semisuberites* til en anden. Men alle har de som fælles Kjendemerker, at de kun besidde *tr<sup>o</sup>ac* Naale og at disse er saaledes anordnede, at der i den ydre Skorpe findes kortere og tyndere Naale palisadeformigt anordnede og indenfor findes de længere Naale i radiært udstraalende Bundter, der kun naar ud til Skorpens indre Begrænsning eller som hos *Polymastia* tildels gjennembore denne.

Der findes endnu nogle Svampe, der kun har *tr<sup>o</sup>ac* Naale, men hos hvem Naalenes Anordning er en anden end hos de ovenfor opregnede og som jeg opfører under Navnet *Suberites*.

***Suberites alveus*, n. sp.**

En liden Svamp af Form som en Bikube, med en Naalekrands rundt Basis (Tab. II, Fig. 3, *a*). Paa Gjennemsnittet sees en lysere Corticalmasse at omgive en bruntfarvet Centralmasse og midt paa Basalfladen sees en lysfarvet Tap (Fig. 3, *b*). Denne Tap og hele Corticalmassen forresten er dannet af lange *tr<sup>o</sup>ac* Naale. Disse Naale ligger langs hele den konvexe Flade tæt pakkede og tilnærmelsesvis parallelle; dog er hele Overfladen fint bustet

Den norske Nordhavsexpedition. G. A. Hanssen: Spongiadæ.

cortical layer are placed together in fasciculi, and this imparts to it, the appearance of being formed of small papillæ whilst, in *Th. semisuberites* it is smooth.

**Habitat.**

Stations Nos. 29, 35, 125, 205, 257, 290, 292.

***Polymastia penicillus*, (Mont) Vosm.**

In „Niederl. Archiv für Zoologi, Supplementband I“, Vosmaer has given a detailed description of this species, accompanied by illustrations; and for this reason, I do not, here, more minutely, characterise it. The specimens collected are very large, being 7—8<sup>cm</sup> in diameter.

**Habitat.**

Station No. 267?

In this species, the spicular arrangement is very similar to that of the previously named species; the similarity is, however, greatest in the case of *Radiella sol*, and it is, certainly, incorrect to assign to these animals different generic designations. If we place reliance upon the consistency as a generic characteristic, we might assign *Polymastia penicillus* and *Radiella sol* to one genus, and *Rinalda uberrima* and *Thecophora semisuberites* to another. But, all of them have, as a common distinguishing feature, only, *tr<sup>o</sup>ac* spicules, and these arranged in such manner, that in the exterior crust, shorter and slenderer spicules are arranged in form of a palisade, and inside these again, the longer spicules are found, placed in radiating fasciculi which extend, only, to the inner margin of the crust, or, partially, penetrate it, as in *Polymastia*.

There are also found, yet, a few sponges which have only *tr<sup>o</sup>ac* spicules, but in which the arrangement of the spicules is dissimilar from that found in the above-named; and these, I have ranked under the designation *Suberites*.

***Suberites alveus*, n. sp.**

A small sponge of bee-hive shape, having a spicular wreath around the base (Pl. II, fig. 3, *a*). The sectional aspect shows, a light coloured cortical mass, surrounding a brown coloured central substance, and in the middle of the basal surface, a light-coloured prominence (Pl. II, fig. 3, *b*). This prominence as well as, also, the whole of the cortical mass, otherwise, is formed of long *tr<sup>o</sup>ac* spicules. These spicules are placed along the entire convex surface,



ved fremragende Spidser af Naalene (Tab. II, Fig. 3, *c*). Paa Basis er Naalene anordnede i Bundter, der med sine Baser rage ind i den centrale grøntfarvede Sarkodemasse, medens Naalene divergere og rage frit frem paa Underfladen; mellem disse Naalebundter findes smækrere Naale, der udfylde Rummene mellem Bundterne (Tab. II, Fig. 3, *c*). Naalens Form sees af Tab. II, Fig. 3, *d*.

**Findested.**

Station 205.

**Suberites conica, n. sp.**

En liden hvid Svamp, der sidder fastvoxet paa et Brudstykke af en Serpulaskal; den har samme Form som den foregaaende, men ingen Spikelkrands omkring Basis. Dens Centralmasse er gulbrun og skinner igjennem det farveløse Corticallag. Denne dannes udelukkende af *tr<sup>o</sup>ac f* Spikler med temmelig varierende Form af Naalenes Hoveder (Tab. II, Fig. 6). Den gulbrune Centralmasse er gjennemsat af lignende Naale.

**Findested.**

Station 205.

**Suberites incrustans, n. sp.**

En tynd, brunlig Skorpe, fastsiddende paa en Sten; Overfladen dannes af en Række tætpakkede korte Knappe-naale, medens disse indenfor er længere og tykkere og ligge samlede i Bundter uden nogen bestemt Anordning (Tab. II, Fig. 10, Tab. VI, Fig. 13),

**Findested.**

Station 79.

**Suberites radians, n. sp.**

En liden, flad, rund Svamp med en Krands af Spikler langs Randen, har i sit Ydre megen Lighed med *Radiella sol*, men Anordningen af Spiklerne er en anden, idet de hos denne er ordnede som hos *Sub. alveus*; Spikelbundterne straalet ud fra den konvexe Overflade og paa

and are, closely, set together, nearly parallel; but still, the surface has a finely hispid appearance, caused by the projecting points of the spicules (Pl. II, fig. 3, *c*). At the base, the spicules are placed in fasciculi, and their bases project into the central green-coloured sarcodal substance, whilst the spicules become divergent, and project, freely, forward on the inferior surface. Between these spicular fasciculi, thinner spicules are also found, occupying the spaces between the fasciculi (Pl. II, fig. 3, *c*). The form of the spicules is seen in Pl. II, fig. 3, *d*.

**Habitat.**

Station No. 205.

**Suberites conica, n. sp.**

A small white sponge, which is seated upon and is firmly adherent to a fragment of the shell of a serpula. It has the same form as the preceding one, but without the spicular wreath around the base. Its central substance, or mass, is yellowish-brown in colour, and appears visible through the colourless cortical layer. This is formed, exclusively, of *tr<sup>o</sup>ac f* spicules, with rather varying forms of spicular heads (Pl. II, fig. 6). The yellowish-brown central substance is, also, occupied by similar spicules, which intersect it throughout.

**Habitat.**

Station No. 205.

**Suberites incrustans, n. sp.**

A thin, brownish crust, firmly seated on a stone. The surface is formed of a series of closely packed, short, pin-shaped spicules; whilst interiorly, these are longer and thicker, and occur collected in fasciculi, without, however, any definite regularity of arrangement (Pl. II, fig. 10, Pl. VI, fig. 13).

**Habitat.**

Station No. 79.

**Suberites radians, n. sp.**

A small, flat, round sponge, with a wreath of spicules along its margin. In outward appearance, it much resembles *Radiella sol*, but its spicular arrangement is different, in so far, that in this specimen, the arrangement is like that of *Sub. alveus*. The spicular fasciculi radiate from the convex



Basis findes et Lag af kortere Spikler, hvis Spidser rager frit ud paa Underfladen og langs Randen er længere end forresten paa Underfladen og saaledes danne Spikelkrandsen langs Randen (Tab. II, Fig. 7).

**Findested.**

Station ukjendt.

**Suberites glabra, n. sp.**

En langagtig, rund Stilk, der kun bestaar af *tr<sup>o</sup>ac* Naale, som danner et Maskeværk uden bestemt Anordning af Maskerne. I Overfladen sidder kortere Naale perpendikulært paa samme (Tab. II, Fig. 9).

**Findested.**

Station ukjendt.

**Desmacidinæ.**

Ligeoverfor disse Svampe er jeg i stor Forlegenhed, da jeg ikke med Sikkerhed ved at henhøre de forskjellige Former til de af Vosmaer<sup>1</sup> opstillede Genera. Jeg begynder med nogle Svampe, som jeg antager hører til *Myxilla*.

**Myxilla exigua, n. sp.**

Et tyndt, hvidligt Lag paa Skallen af en bivalv (*Terebratula*?); det bestaar af et forvirret Net af *trac* og *trac sp.* Naale, mellem hvilke der findes talrige *anc-anc*, 3 (Tab. II, Fig. 2).

**Findested.**

Station ukjendt.

<sup>1</sup> Vosmaer: The family of the Desmacidinæ. — Notes from the Leyden Museum. Vol. II, 1879.

surface, and at the base, there is found a layer of shorter spicules, whose points, freely, project on the inferior surface and along the margin, in which last named situation they are longer than on the inferior surface, otherwise, and produce, thus, spicular wreaths along the margin (Pl. II, Fig. 7).

**Habitat.**

No record.

**Suberites glabra, n. sp.**

An elongate, round stem, which is composed, exclusively, of *tr<sup>o</sup>ac* spicules, forming a reticulation without any definite regularity of the meshes. On the surface, short spicules appear, placed perpendicularly in it (Pl. II, Fig. 9).

**Habitat.**

No record.

**Desmacidinæ.**

In regard to these sponges, I find myself in a great difficulty; because, I do not see my way, clearly, to assign with certainty, the various forms, to the genera established by Vosmaer<sup>1</sup>. I commence with a few sponges which I suppose to pertain to *Myxilla*.

**Myxilla exigua, n. sp.**

A thin, whitish layer, on the shell of a bivalve (*Terebratula*?). It consists of a confused reticulation of *trac* and *trac sp.* spicules, between which numerous *anc-anc* 3, spicules appear (Pl. II, fig. 2).

**Habitat.**

No record.

<sup>1</sup> Vosmaer. The family of the Desmacidinæ. — Notes from the Leyden Museum. Vol. II, 1879.



**Myxilla grisea, n. sp.**

En flad, grenet, lysegraa Svamp (Tab. VI, Fig. 9), der foruden *anc*<sup>2</sup> 3 Spikler kun har glatte Spikler, dels tynde *tr*<sup>2</sup>, dels tykke, *tr*<sup>2</sup> og *trac* Spikler. De to sidstnævnte Former er lidt krummede (Tab. I, Fig. 3).

**Findested.**

Station 84.

**Myxilla brunnea, n. sp.**

En stor, bladdannet Svamp af brun Farve (Tab. VI, Fig. 5), der har en hul Overflade. Den har ingen faste Fibre (keratode Fibre). Saavidt det kunde iagttages, bestod dens Spikler af *ac*<sup>2</sup> *sp.* og *tr*<sup>2</sup> *sp.* svagt krummede, desuden *anc*<sup>2</sup> 3 (Tab. III, Fig. 1 A).

**Findested.**

Station 275.

**Myxilla flabelliformis, n. sp.**

Ogsaa et stort, vifteformigt Blad, men af graa Farve (Tab. VI, Fig. 6). Heller ikke det har nogen faste (keratode) Fibre. Dets Spikler ere *ac*<sup>2</sup> og *anc*<sup>2</sup> 3 (Tab. II, Fig. 14).

**Findested.**

Station 359.

Jeg har betegnet de to følgende Svampe *Sclerilla*, og ved at gjøre dette lagt Vægt paa Spiklerne alene uden at skjænke Schmidts Sarkode-Membran og Fibre nogen Opmærksomhed.

**Sclerilla arctica, n. sp.**

En graafarvet, flad Kage med runde Kanter, noget aflang og forsynet i den ene Ende med en fragmentær Overflade, der kunde synes at vise, at den har siddet paa en tynd Stilk (Tab. VI, Fig. 15). Den bestaar af Bundter af *ac*<sup>2</sup> Spikler, og imellem disse Bundter finder man en farveløs Sarkode, hvori man opdager *anc*<sup>2</sup> 3 Spikler. I Periferien er der et Lag af kortere *ac*<sup>2</sup> *sp.* Spikler, som ere tæt sammenpakkede og skjære hinanden i alle Retninger

**Myxilla grisea, n. sp.**

A flat, branchy light-grey sponge (Pl. VI, fig. 9) which has, besides *anc*<sup>2</sup> 3 spicules, only, smooth spicules, partly, thin *tr*<sup>2</sup>, partly, thick *tr*<sup>2</sup> and *trac* spicules; both the last named forms being slightly curved (Pl. I, fig. 3).

**Habitat.**

Station No. 84.

**Myxilla brunnea, n. sp.**

A large, leaf-shaped, brown coloured sponge (Pl. VI, fig. 5) having a cavernous surface. It has no solid fibres (keratode fibres). As far as could be observed, its spicules consisted of *ac*<sup>2</sup> *sp.* and *tr*<sup>2</sup> *sp.* gently curved, besides *anc*<sup>2</sup> 3, (Pl. III, fig. 1 A).

**Habitat.**

Station No. 275.

**Myxilla flabelliformis, n. sp.**

Also a large leaf, of fan-shape, but grey in colour (Pl. VI, fig. 6). Neither does it contain any keratode fibres. Its spicules are *ac*<sup>2</sup> and *anc*<sup>2</sup> 3, (Pl. II, fig. 14).

**Habitat.**

Station No. 359.

I have designated the two following sponges, *Sclerilla*, and in doing so, lay stress upon the spicules only, without paying any attention to Schmidt's sarcode membrane and fibres.

**Sclerilla arctica, n. sp.**

A grey-coloured, flat, cake [with rounded margins, somewhat oblong, and furnished at the one extremity, with a fragmentary surface, which would appear to show, that it had been seated on a thin stem (Pl. VI, fig. 15). It consists of fasciculi of *ac*<sup>2</sup> spicules, and between these fasciculi, there is found a colourless sarcode, in which *anc*<sup>2</sup> 3 spicules appear. In the periphery, there is a layer of shortish *ac*<sup>2</sup> *sp.* spicules, which are closely packed, and intersect each



(Tab. II, Fig. 4). Lignende Spikler findes ogsaa paa den indvondige Side af Svampen siddende mellem de glatte  $ac^2$  Spikler.

**Findested.**

Station 8, 275.

**Sclerilla dura, n. sp.**

En aflang, pæreformig, haard Svamp med en kort, krummet Stilk og med en liden Ophøining paa den øvre Ende, som er uden nogen Aabning.

Den er dannet ligesom det foregaaende Exemplar.  $ac^2$  Spikler udspringe efter Længden langs Axen, parallele i Midten og udstraalende i Bundter henimod Periferien, der ogsaa ligner den sidst omtalte, dannet af  $ac^2$  sp. Spikler, hvilken Form af Spikler man imidlertid ogsaa finder paa den indvendige Side af Svampen imellem de glatte  $ac^2$  Spikler; og endelig finder man  $anc^2$  3 Spikler i Sarkoden. Disse sidste finder man hyppigst i aflange og runde Sarkode-Klumper, stærkt farvede med Karmin, og som paa nogle Steder næsten har Udseende af at bestaa af Celler, skjønt det ikke er muligt med Vished at opdage Kjerner eller Cellerande (Tab. II, Fig. 5).

**Findested.**

Station 255.

Ved at henføre disse to Former til særegne Arter gør jeg det blot paa Grund af det afvigende Udseende. Sandsynligvis vilde det være mere nøiagtigt at henføre dem til een Art.

**Desmacidon.**

Til denne Slægt maa de Svampe, der nu følger, formentlig henregnes, omendskjønt Spiklerne ikke ere ganske lige i dem alle. Med Hensyn til disse Svampe er jeg ogsaa i stor Tvivl om, hvorvidt nogle bør stilles sammen under en Art, eller om de bør henføres til individuelle og personlige Arter. Da deres ydre Udseende imidlertid er saa forskjelligt som vel muligt, saa tror jeg, det er rettest foreløbigt at skjelne mellem Arter og som Artsmærker alene at bruge deres ydre Udseende, idet det er umuligt at finde nogen Forskel i deres Bygning eller Naaleformerne

other in all directions (Pl. II, fig. 4). Similar spicules are, also, found on the internal side the sponge, situated between the smooth  $ac^2$  spicules.

**Habitat.**

Stations Nos. 8, 275.

**Sclerilla dura, n. sp.**

An oblong, pyriform, hard sponge, with a short curved stem, and a small protuberance, on the superior extremity, without any aperture.

It is formed like the preceeding specimen.  $ac^2$  spicules proceed longitudinally along the axis; being parallel in the middle; and radiating in fasciculi towards the periphery, which is, also, like the last mentioned, formed of  $ac^2$  sp. spicules; this form of spicules is, however, also found inside the sponge, between the smooth  $ac^2$  spicules; and finally,  $anc^2$  3 spicules are found in the sarcode. These last are, most frequently, found in oblong and round sarcodal lumps, strongly coloured with carmine, and which, in some places, have almost the appearance of consisting of cells; although it is not possible to detect, with certainty, nuclei or cellular margins (Pl. II, fig. 5).

**Habitat.**

Station No. 255.

In assigning these two forms to separate species, I do so, only, on account of the diverging habit; probably it would be more correct to assign them to one species.

**Desmacidon.**

To this genus, the sponges which now follow must, presumably, be assigned, although the spicules are not quite similar in them all. In regard to these sponges, I am, also, in great doubt, whether several ought to be placed together under one species, or whether they ought to be assigned to individual and personal species. As, however, their external habit is as different as well can be, I have thought it best, meantime, to distinguish species, and to use as specific distinguishing feature, the external habit only, because it is impossible to find any difference in



uden for en Arts vedkommende, der foruden Ankere ogsaa har Buer og S-formede Naale.

**Desmacidon clavatum, n. sp.**

Et aflangt Hoved paa en rund Stilk; denne hvid, Hovedet gult (Tab. II, Fig. 11). I Stilken saavel som i Hovedet *ac*<sup>2</sup> og *trac* Naale samt særligt i Periferien af Hovedet, men ogsaa spredt inde i samme *anc*<sup>2</sup> 6 (Tab. II, Fig. 11).

**Findested.**

Station 51.

**Desmacidon nucleus, n. sp.**

Nøddekjernestør, brunlig Svamp med glat Overflade. Den har *trac* Naale, der krydse hinanden i alle Retninger og med sine Spidser rager ud over Overfladen. Denne er ellers dannet udelukkende af *anc*<sup>2</sup> 6 Naale, der her ligge tæt pakkede; men som ogsaa findes forresten spredt inde i Svampen (Tab. III, Fig. 1, Tab. VI, Fig. 17).

**Findested.**

Station 48.

**Desmacidon giganteum, n. sp.**

En meget stor, ca. 22<sup>cm</sup> lang Svamp, der i den nedre Del dannes af en Stilk af spiralsnoede Naale, udenpaa hvilke der findes en ca. 1<sup>mm</sup> tyk blødere Skorpe, og hvis øvre Del er noget tykkere og besat med en Masse papilleformige Udvækter, der er tykkere for Enden end ved Basis (Tab. VII, Fig. 8).

Svampen er svagt gulfarvet. Den spiralsnoede Axe bestaar udelukkende af lange *ac*<sup>2</sup> og *trac* Naale [og i den gulfarvede Skorpe ligesom i dens papilleformige Udvækter forekommer samme Slags Naale, men af mindre Kaliber, samt *anc*<sup>2</sup> 6, ligesom hos den foregaaende fornemmelig sammenhobede i Periferien (Tab. II, Fig. 12, 13).

their structure, or in the form of the spicules, except in regard to one species which has, besides anchors and bows, also, S-formed spicules.

**Desmacidon clavatum, n. sp.**

An oblong head on a round stem. The head is yellow, and the stem is white in colour (Pl. II, fig. 11). Both, in the stem and in the head, *ac*<sup>2</sup> and *trac* spicules; also, especially, in the periphery of the head, but also inside of it, *anc*<sup>2</sup> 6, spicules are found (Pl. II, fig. 11).

**Habitat.**

Station No. 51.

**Desmacidon nucleus, n. sp.**

A brownish sponge, of the size of a nut kernel; with a smooth surface. It has *trac* spicules intersecting each other in all directions, and having their apices projecting beyond the surface. This is, otherwise, formed exclusively of *anc*<sup>2</sup> 6, spicules, which are, here, placed closely packed, but which, also, are found dispersed inside the sponge (Pl. III, fig. 1, Pl. VI, fig. 17).

**Habitat.**

Station No. 48.

**Desmacidon giganteum, n. sp.**

A very large sponge, measuring nearly 22<sup>cm</sup> in length, and whose inferior part consists of a stem of spirally twisted spicules; outside of which, there is found a thick softish crust, about 1<sup>mm</sup> thick; but with the superior part somewhat thicker, and beset with a multitude of papilla-shaped warts whose extremities are thicker than the base (Pl. VII, fig. 8).

The sponge is pale-yellow in colour. The spirally twisted axis consists, exclusively, of long *ac*<sup>2</sup> and *trac* spicules, and in the yellow-coloured crust, as also in the papilla-formed warts, the same kind of spicules appear, but of smaller calibre; also *anc*<sup>2</sup> 6, which are, as in the preceding specimen, principally, collected together in the periphery (Pl. II, figs. 12, 13).



**Findested.**

Station 58, og en anden, hvis Navn er gaaet tabt.

**Desmacidon arcticum, n. sp.**

Et aflagt Hoved paa en temmelig tyk Stilk; Farven hvid (Tab. VI, Fig. 16). Stilken bestaar af lange *trac* og *tr*<sup>2</sup> Naale, der straalere ud i Hovedet i alle Retninger; i Hovedet en kornet, ufarvet Sarkode, i hvilken findes *anc*<sup>2</sup> 3 og *anc*<sup>2</sup> 6, samt i ringe Antal  $\sim$  og  $\infty$  (Buer og S-formige Naale) (Tab. III, Fig. 2).

**Findested.**

Station 137.

**Esperia.**

Til denne Slægt tror jeg at maatte henregne de følgende Dyr, der alle har *trac* og *rut-rut* Naale, og jeg er med Hensyn til dem i den samme Forlegenhed som med de foregaaende, om jeg skal henføre dem til samme Art eller gjøre flere Arter af dem.

Paa Tab. VII, Fig. 1, 2, 3, 4, 5, 14 og 15 findes disse Formers ydre Udseende fremstillet og paa Tab. III, Fig. 6 og Tab. IV, Fig. 2 endnu to andre. Som det vil sees, er de betydeligt afvigende i sin ydre Form, men ved Undersøgelse af deres Bygning viser denne sig at være paafaldende ensformig hos dem alle, som det vil sees af Tab. III, Fig. 3, 4, 5, 6, 7 og Tab. IV, Fig. 1 og 2, idet dér hos dem alle findes Straaler af Spikler, der rage ud fra en fælles Stamme, dels i Form af fine Naale, dels i Form af Blade; alle disse Naale er *trac* og i det tynde Lag af Sarkode, der ligger udenpaa disse Naalebundter og tildels inde mellem Naalene i Stammen findes *rut-rut* af noget forskjellig Størrelse hos de forskellige Dyr, men hos alle af samme Form. Hos en enkelt er der ogsaa fundet S-formige Naale (Tab. IV, Fig. 2).

Efter dette forekommer det mig at være rettest at henføre dem alle til en Art, som jeg vil kalde

**Esperia bihamatifera (Carter), Vosmaer<sup>1</sup>.**

S-formige Naale findes, som ovenfor bemærket, kun

<sup>1</sup> Vosmaer: The family of the Desmacidinæ. Notes from the Leyden Museum. Vol. II, 1879.

**Habitat.**

Station No. 58, and another station the record of which is lost.

**Desmacidon arcticum, n. sp.**

An oblong head, on a rather thick stem, and white in colour (Pl. VI, fig. 16). The stem consists of long *trac* and *tr*<sup>2</sup> spicules, which radiate, outwards, in all directions, in the head. In the head, there is a granular, colourless sarcode, in which *anc*<sup>2</sup> 3, and *anc*<sup>2</sup> 6, spicules appear and, also, a few  $\sim$  and  $\infty$  spicules (Bows and S-formed spicules) (Pl. III, fig. 2).

**Habitat.**

Station No. 137.

**Esperia.**

To this genus, I have found myself obliged to assign the following animals, all of which have *trac* and *rut-rut* spicules, and I am in the same difficulty in regard to them, as with the preceding ones viz. whether to assign them to the same species, or form several species for them.

Upon Pl. VII, figs. 1, 2, 3, 4, 5, 14 and 15 the external habit of these forms is illustrated; and on Pl. III, fig. 6 and Pl. IV, fig. 2, still, other two forms are shown. As will be apparent, they are considerably divergent in their external habit, but on investigation of their structure, that is seen to be, remarkably, uniform in them all, as may be seen on referring to Pl. III, figs. 3, 4, 5, 6, 7 and Pl. IV, figs. 1, 2; in so far, that in all of them, rays of spicules are found, which shoot outwards from a common root, partly, in the form of slender spicules, and partly, in the form of leaves. All of these spicules are *trac* in form, and in the thin layer of sarcode which is found outside of these spicular fasciculi, and partly, also, between the spicules of the root, there are found *rut-rut* spicules, of somewhat different size in the different animals, but still having the same form in all of them. In a solitary one, there are, also, found S-formed spicules (Pl. IV, fig. 2).

It appears to me, from this, that it is best to assign the whole of them to one species, and this I will designate

**Esperia bihamatifera (Carter), Vosmaer<sup>1</sup>.**

As remarked above, S-formed spicules are found only

<sup>1</sup> Vosmaer. The family of the Desmacidinæ. Notes from the Leyden Museum. Vol. II, 1879.



hos et Exemplar, og det er heller ikke hos alle, at der findes *rut-rut* af to Størrelser, men disses Forskjel synes mig dog at være for liden til derpaa at begrunde Artsforskjel. Skulde man benytte den ydre Form til en saadan, saa maatte helst den, der er fremstillet, Tab. III, Fig. 6, opføres som en egen Art, da den synes at afvige fra de andre derved, at der paa den tilsyneladende ikke findes Naalebundter eller Blade som hos de andre; den er skinnende hvid af Farve og har Form af et lidet elegant Bæger paa en lang, tynd Stilk. Under Mikroskopet viser det sig imidlertid, at saavel Stilken som den udvendige Flade af Bægeret er besat med korte Naalebundter. Den i Tab. IV, Fig. 2 fremstillede Form er i sin nedre Ende spindel-formet opdreven og her findes udenom Axen ophobet en hel Del hvide, kugleformige Legemer, der rimeligvis er Embryoner; ialfald ser de ud, som vare de Ansamlinger af Rundceller, Embryoner i Morulastadiet.

#### Findested.

Et af de indfangede Dyr er fra Station 267, for de Øvriges vedkommende er Findestederne ubekjendt.

#### *Cladorhiza abyssicola*, M. Sars.

Af denne Form er der indfanget en Mængde Exemplarer, og disse er ogsaa af meget forskjelligt Udseende, som det vil sees af Tab. VII, Fig. 7, 9, 10, 11, 12 og 13, men hos alle er Spiklerne ens paa smaa Afvigelser nær, som det kan sees af Tab. IV, Fig. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 og 16. De smaa *anc-anc* er hos alle ens, idet de for begge Ender har 5 Tænder, ikke 5 og 3, som det almindeligvis angives. Buernes Form er noget afvigende hos de forskjellige Exemplarer, som det kan sees af Figurerne, specielt Fig. 6 og 10, hvor de er smærkrere og de ombøiede Ender ligesom udtrukne i længere Spidser, men dette er for ubetydelige Afvigelser til at begrunde en Artsforskjel, og heller ikke kan hertil bruges det Forhold, at hos nogle Stavnaalene er forsynede med Opdrivninger paa Midten som i Tab. IV, Fig. 4, 5 og 11. Hos et Exemplar har jeg ikke kunnet finde Buer, Tab. IV, Fig. 3, men Ankerne har den samme Form og 5 Tænder for hver Ende som ellers.

#### Habitat.

Findestederne er for de fleste Exemplarers vedkommende ukjendt; de kjendte Findesteder er Station 31, 35, 40, 84, 359.

in one specimen; and neither are there found in all of them, *rut-rut* spicules of two sizes; but these divergencies, however, seem to me, to be too small, to establish from them, a difference of species. If the external habit is made use of for this purpose, then, the form illustrated in Pl. III, fig. 6, is the one which would, preferably, be presented as an individual species, as it appears to differ from the others in this, that upon it, there are, apparently, not found any spicular fasciculi, nor leaves, as in the others. It is lustreously white in colour, and is shaped like a small, handsome chalice, seated on a long slender stem. Viewed under the microscope, it is, however, seen, that both, the stem and the external leaves of the chalice, are beset with short spicular fasciculi. The form illustrated in Pl. IV, fig. 2 is fusiform at the inferior extremity, and in this situation there is seen, collected together around the axis, a large number of white spherical corpuscles; these are, presumably, embryos, at all events, they appear as if they are collections of round cells; embryos in the morular stage.

#### Habitat.

Station No. 267. One specimen. The record of the stations, at which the remainder of the specimens were obtained, has been lost.

#### *Cladorhiza abyssicola*, M. Sars.

Of this form, a multitude of specimens were obtained; and they are of very varying appearance, as will be evident on referring to Pl. VII, figs. 7, 9, 10, 11, 12 and 13; but in all of them, the spicules are alike, except as regards a few trifling divergencies; as may be seen in Pl. IV, figs. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and 16. The small *anc-anc* spicules, are similar in all of the specimens, in so far, that they have at both extremities 5 teeth, and not 5, and 3 teeth, as is, usually, stated. The form of the bows is somewhat various in the different specimens, as may be observed from the illustrations, especially figs. 6 and 10, where they are seen to be more slender, and the bent extremities to be, as it were, attenuated into long points, but this divergency is too trifling to establish a variety of species; neither can we, in addition, make use of the fact, that in some of them, the rod spicules are furnished with bulbous tumefactions in the middle, as seen in Pl. IV, figs. 4, 5 and 11. In one of the specimens, I have not been able to observe bows (Pl. IV, fig. 3), but the anchors have the same form, and 5 teeth on each extremity, as usual.

#### Habitat.

Stations Nos. 31, 35, 40, 84, 359. The greater part of the specimens are, however, dredged, at stations the record of which has been lost.



**Geodia parva, n. sp.**

En liden, ca. 4<sup>mm</sup> lang, haard Svamp med lidt knudet og ujevn Overflade. Skorpen dannes af *Geodiakugler* af det sædvanlige Udseende; noget Osculum kan ei opdages; Svampens Centralmasse dannes af en traadet Sarkode, der næsten har Udseende af fibrillært Bindevæv, og i denne findes et ringe Antal *trac* Naale uden nogen bestemt Anordning, af hvilke enkelte rager ind i den af Kiselkugler dannede Skorpe, og desuden spredte Kiselkugler og *gl st* Naale (Tab. V, Fig. 1).

**Findested.**

Station ukjendt.

**Pachymatisma Johnstonia, Bowerbank.**

Der er fundet foruden nogle smaa Exemplarer, der i det Ydre har megen Lighed med de af Vosmaer<sup>1</sup> som *Isops sphäroides* og *Isops pallida* beskrevne Svampe, ogsaa meget store Exemplarer, 5—6<sup>cm</sup> i Gjennemsnit. Ingen af dem viser imidlertid det for *Isops* karakteristiske Forhold af Oscula og Porer. Der findes talrige Oscula paa hele Overfladen, hvert Osculum omgivet af en liden Vold (Tab. IV, Fig. 15, a). Den ydre Skorpe er dannet af et jevnt tykt Lag af Kiselkugler (Fig. 15, b) op i hvilket der rager Naale af forskjellig Form, dels *Mta* ( $\varphi = 90^\circ$ ), enkeltvis *Mtabif* (Fig. 15, c), dels *ac<sup>2</sup>f* (Fig. 15, d). Mellem Kiselkuglerne findes i Overfladen smaa *gl st* (Fig. 15, e); saadanne findes ogsaa inde i Svampen ved Siden af større *st* (Fig. 15, f) og Kiselkugler i forskjellige Udviklingsstadier (Fig. 15, g), paa hvilke man tildels tydeligt kan se disses Opbygning af prismatiske Naale, der med Spidserne støde sammen i Centrum og vende de brede Ender ud mod Periferien (Fig. 15, h). Disse ydre Ender er ikke hos alle Kiselkuglerne afstumpede; paa en Del ser de afstumpede ud, naar man ser dem *en face*, men ved at betragte Randen ser man, at de ere tilspidsede (Fig. 15, i). Foruden de længere *ac<sup>2</sup>f* Naale findes inde i Svampen korte *trac* og *tr<sup>0</sup>tr* Naale (Fig. 15, k).

**Findested.**

Station ukjendt og 359.

**Geodia parva, n. sp.**

A small, hard sponge about 4<sup>mm</sup> in length, with a somewhat knotted and uneven surface. The crust is formed of *Geodia* spheres, of the usual appearance. No osculum can be seen. The central substance, or mass of the sponge, is formed of a filamentous sarcode, that has almost the appearance of fibrillous connective-tissue; a small number of *trac* spicules are found in it, but without any definite arrangement, and a few of these spicules project into the crust formed by the siliceous spheres; and further, also, of scattered siliceous spheres, and *gl st* spicules (Pl. V, fig. 1).

**Habitat.**

No record.

**Pachymatisma Johnstonia, Bowerbank.**

Besides a few small specimens of sponges, which in external appearance have much similarity to those described by Vosmaer<sup>1</sup>, as *Isops spheroides* and *Isops pallida*, some very large specimens were, also, found, measuring 5—6<sup>cm</sup> in diameter. None of them, however, exhibit the peculiar condition of oscula, and pores, characteristic of *Isops*. Numerous oscula are found on the entire surface, each osculum being surrounded by an elevated margin (Pl. IV, fig. 15, a). The external crust is formed, of a uniformly thick layer of siliceous spheres (fig. 15, b), in which spicules of various forms project; partly *Mta* ( $\varphi = 90^\circ$ ), occasionally *Mtabif* (fig. 15, c) and partly *ac<sup>2</sup>f* (fig. 15, d). Between the siliceous spheres in the surface there are found, small *gl st* spicules (fig. 15, e). These are also found, inside the sponge, along with larger *st* spicules (fig. 15, f), and siliceous spheres in various stages of development (fig. 15, g) upon which, sometimes, may be, distinctly, seen, their structure of prismatic spicules, meeting together in the centre with their apices, and turning their broad extremities towards the periphery (fig. 15, h). These outer extremities are not blunted in all the siliceous spheres. In a number of them they appear blunted, if viewed *en face*, but on investigation, of the margin, they are seen to be, in reality, acute (fig. 15, i). Besides the long *ac<sup>2</sup>f* spicules, short *trac* and *tr<sup>0</sup>tr* spicules are also found (fig. 15, k), inside the sponge.

**Habitat.**

Station No. 359, and other stations, the record of which has been lost.

<sup>1</sup> Vosmaer: Report on the Sponges dredged up in the Arctic Sea by the „Willem Barents“ in the years 1878 and 1879. *Niederländisches Archiv für Zoologie. Supplementband I. 1881—82.*

Den norske Nordhavsexpedition. G. A. Hanssen: *Spongiadae.*

<sup>1</sup> Vosmaer. Report on the Sponges dredged up in the Arctic Sea, by the „Willem Barents“, in the years 1878 and 1879. *Niederländisches Archiv für Zoologie. Supplementband I. 1881—82.*



**Tethya cranium, Lamarek.**

Flere Exemplarer, alle runde, Overfladen besat med talrige Papiller (Tab. VII. Fig. 16). Naalene findes fremstillede Tab. V, Fig. 3 og 4.

**Findested.**

Station 8, 323.

**Tethya cranium, var. infrequens, Carter.**

Den stemmer i sit Udseende og sin Bygning fuldkommen overens med *Th. cranium* (Tab. VII, Fig. 17 og 18). Den afvigende Form af *Mta* ( $\varphi > 90^\circ$ ) og *Mta* ( $\varphi < 90^\circ$ ) findes fremstillet Tab. V, Fig. 5, a, b. I det ene Exemplar fandtes et Embryo (Tab. V, Fig. 5, c), i hvilket Naalenes radiære Anordning og deres Form tydeligt sees. *Mta* ( $\varphi > 90^\circ$ ) har, som det vil sees, en noget afvigende Form fra de samme Naale hos den voxne Svamp (Fig. 5, d), idet Armene er meget mere divergerende.

**Findested.**

Station 286.

**Thenea muricata, (Bowerbank) Gray.**

Af denne Svamp, der har faaet saa mange Navne<sup>1</sup>, er der fanget en Masse Exemplarer og af meget forskellig Størrelse lige fra omtrent knappenaalshovedstore til saadanne, der er 5—6<sup>cm</sup> i Gjennemsnit (Tab. VII, Fig. 19). Næsten alle de større har et tydeligt Osculum af 3—4<sup>mm</sup> i Gjennemsnit paa den øvre Flade. Den eneste Forskel, der kan findes mellem alle disse Exemplarer, er tildels Farven, idet nogle, især de mindre, er lysere af Farve, medens de større er brungraa, og desuden Størrelsen og Taggetheden af de store *st* Naale, som det vil sees af Tab. V, Fig. 6, 7, 8 og 9.

**Findested.**

Stat. 1, 29, 262 286, 303, 323, og andre ukjendte.

<sup>1</sup> Se Vosmaer: Report etc. Pag. 5.

**Tethya cranium, Lamarek.**

Several specimens; all of which are round. The surface is beset with numerous papillæ (Pl. VII, fig. 16). The spicules will be found illustrated on Pl. V, figs. 3, 4.

**Habitat.**

Stations No.s 8, 323.

**Tethya cranium, var. infrequens, Carter.**

In external appearance, and structure, this specimen quite corresponds with *Th. cranium* (Pl. VII, figs. 17, 18). The divergent form of spicules, *Mta* ( $\varphi > 90^\circ$ ) and *Mta* ( $\varphi < 90^\circ$ ), is seen illustrated in Pl. V, figs. 5, a, b). In one specimen an embryo was found (Pl. V, fig. 5, c), in which the radiating arrangement of the spicules, and their form, are, distinctly, visible. The *Mta* ( $\varphi < 90^\circ$ ) has, as will be seen, a very different form from the same spicule in the adult sponge (fig. 5, d), in so far as, that the arms are much more divergent.

**Habitat.**

Station No. 286.

**Thenea muricata, (Bowerbank) Gray.**

Of this sponge, to which a number of designations<sup>1</sup> has been applied; a large number of specimens has been obtained; and of very various sizes, ranging from about a pin's head in size, up to specimens measuring 5—6<sup>cm</sup> in diameter (Pl. VII, fig. 19). Almost all the large ones have, a distinct osculum of 3—4<sup>mm</sup> diameter, seated on the superior surface. The only difference which can be found, between all these specimens is, partly, in colour, in as much as, that a few, especially the smaller ones, are lighter in colour, whilst the large ones are brownish grey, and partly, also, in the size and aculeation of the large *st*. spicules; as will be apparent on referring to the illustration Pl. V, figs. 6, 7, 8, 9.

**Habitat.**

Stations No.s 1, 29, 262, 286, 303, 323, and other stations, the record of which is lost.

<sup>1</sup> Vide. Vosmaer's Report etc. Pag. 5.



**Clavellomorpha minima**, n. g. n. sp.

Denne Svamp kan jeg ikke henføre til nogen bestemt Slægt og jeg maa derfor give den et eget Navn. Det er et lidet  $5^{mm}$  langt kølleformigt Dyr af hvid Farve, eller vel rettere farveløst; dets Bygning kan sees af Tab. V, Fig. 2. Der findes ganske faa  $ac^2$  Naale, der ligger longitudinelt anordnede saavel i den tynde Stilk som i den kølleformige Opdrivning, der er  $0,5^{mm}$  tyk; desuden findes i denne nogle  $Mta$  ( $\varphi = 90^\circ$ ), der ligge inde i den kølleformige Opdrivning, og endeligt er denne saavel som Stilken fyldt af en Masse  $st^2$ .

**Findested.**

Station 303.

**Hyalonema arcticum**, n. sp.

Denne Svamp var tør ved Fordampningen af Alkoholen paa Grund af ufuldstændig Lukning af Karret, hvori den fandtes. Der er flere Exemplarer, indtil  $20^{cm}$  lange, hule, runde Stilke af noget forskjellig Tykkelse, der i den ene Ende sidder ligesom indsænkede i en meget løs, næsten bomuldlignende Masse, se Tab. VII, Fig. 20, der fremstiller denne Ende af et af Exemplarerne, og Fig. 21, der fremstiller et Brudstykke af den bomuldlignende Masse; Farven af de tørre Exemplarer er lysgraa, temmelig nøiagtigt som Tegningens. Den haarde Stamme eller Stilk bestaar udelukkende af lange Naale som Tab. V, Fig. 10,  $a$  og  $a^1$ ; mange af disse har en Opdrivning paa Midten, i hvilken der tydeligt sees en Deling af Axekanalene (Fig. 10,  $a$ ). Begge Ender af disse Naale er  $tr\ sp$  (Fig. 10,  $b$ ). I den bomuldlignende Masse findes foruden saadanne Naale ogsaa 1) meget store  $har\ tr\ sp$  (Fig. 10,  $c$ ). 2)  $har^0\ sp$  (Fig. 10,  $d$ ) og 3)  $ha\ (5r + R\ sp)$  (Fig. 10,  $e$ ). Efter disse Naaleformer maa Svampen være en *Hyalonema*.

**Findested.**

Station 35.

**Kalksvampe.**

Af saadanne er der ogsaa indsamlet en Del Exemplarer, og tildels fra temmelig betydelige Dybder.

**Clavellomorpha minima**, n. g. n. sp.

I am unable to assign this sponge to any known genus, and must, therefore, establish for it a personal designation. It is a small animal, club-shape in form, and measuring  $5^{mm}$  long. It is whitish in colour or, more correctly speaking, may be said to be colourless. Its structure is illustrated Pl. V. fig. 2. Only a very few  $ac^2$  spicules are seen, and these are arranged longitudinally, both in the slender stem, and the club-shaped enlargement, which latter is  $0,5^{mm}$  thick. Besides these, a few  $Mta$  ( $\varphi = 90^\circ$ ) spicules are also found, which are placed, inside the club-shaped enlargement, and finally, both it and the stem are occupied by a multitude of  $st^2$  spicules.

**Habitat.**

Station No. 303.

**Hyalonema arcticum**, n. sp.

This specimen was shrivelled, owing to the evaporation of the alcohol, by reason of an imperfect closing of the vessel in which it was contained. There are several specimens with hollow, round stems, of somewhat variable thickness, measuring up to  $3^{cm}$  in length, and which at the one extremity are seated, as if depressed in a very loose, almost cotton-like substance. Pl. VII, fig. 20 illustrates this extremity in one of the specimens, and fig. 21 illustrates a fragment of the cotton-like substance. The colour of the shrivelled specimens is light-grey, and the colour is, pretty exactly, repeated in the illustration. The shrivelled trunk or stem is composed, exclusively, of long spicules, such as are illustrated in Pl. V, fig. 10,  $a$  and  $a^1$ . Many of them have an enlargement in the middle, in which a division of the canal of the axis is, distinctly, seen (fig. 10,  $a$ ). Both extremities of these spicules are  $tr\ sp$  (fig. 10,  $b$ ). In the cotton-like substance there is, in addition to these spicules, also, found; 1) very large  $har\ tr\ sp$  spicules (fig. 10,  $c$ ); 2)  $har^0\ sp$  spicules (fig. 10,  $d$ ); and 3)  $ha\ (5r + R\ sp)$  (fig. 10,  $e$ ). Judged by the form of these spicules, the specimen must be a *Hyalonema*.

**Habitat.**

Station No. 35.

**Calcareous sponges.**

Of these sponges, there has, also, been collected a number of specimens, and, in some cases, from rather considerable depths.



**Ascetta primordialis**, Haeckel.

Denne Svamp er fundet paa Station 35 i et mindre og et større Exemplar og paa Station 275 et stort Nardorusexemplar fastsiddende paa Røret fra *Onuphis conchy-lega*.

**Ascetta blanca**, Haeckel.

Fra en ukjendt Station 2 Exemplarer, det ene 3<sup>cm</sup> langt og 1,4<sup>cm</sup> bredt, det andet 1,4<sup>cm</sup> langt. Naalene er større end de af Haeckel opgivne Maal, saaledes fandt jeg Basalstraalen paa en Naal 0,308<sup>mm</sup> lang og de to orale Straaler 0,244<sup>mm</sup>, og Naalene er kun enkeltvis stumpe for Enderne, Mesteparten har spidse Straaler.

**Leucandra Egedii?**, Haeckel.

Bestemmelsen af denne Svamp er usikker.

**Findested.**

Station 303.

**Sycandra arctica**, Haeckel.

Exemplarer af denne Svamp er fundet i Saltstrømmen paa 90 Favnes Dyb og paa en ukjendt Station, samt paa Station 40 og 283.

**Sycandra raphanus**, Haeckel.**Findested.**

Station 35.

**Ascetta primordialis**, Haeckel.

One small, and one larger, specimen of this sponge was found, at station No. 35; and at station No. 275, a large Nardorus specimen was found, seated, firmly, on the tube of an *Onuphis conchylega*.

**Ascetta blanca**, Haeckel.

Of this sponge, 2 specimens were obtained at a station the record of which has been lost. The one specimen measures, 3<sup>cm</sup> in length, and 1.4<sup>cm</sup> in breadth; and the other specimen 1.4<sup>cm</sup> in length. The spicules are larger than those mentioned by Haeckel. I found, for instance, the basal ray in a spicule, to measure 0.308<sup>mm</sup> in length, and the two oral rays to measure 0.244<sup>mm</sup> in length. The spicules are, only, occasionally, blunt at the extremities, and the greater number have acute rays.

**Leucandra Egedii?**, Haeckel.

The classification of this sponge is uncertain.

**Habitat.**

Station No. 303.

**Sycandra arctica**, Haeckel.

The specimens of this sponge were collected, in Saltstrømmen<sup>1</sup>, at a depth of 90 fathoms, and, also, at stations No.<sup>s</sup> 40 and 283, as also at another station, the record of which has been lost.

**Sycandra raphanus**, Haeckel.**Habitat.**

Station No. 35.

<sup>1</sup> A local current confined to the middle of the Salten-fjord.



## Forklaring over Figureerne.

- Tab. I, Fig. 1. *Rinalda uberrima*.  
 — 2. *Reniera palescens*.  
 — 3. *Myxilla grisea*.  
 — 4. *Reniera inflata*.  
 — 5. *Reniera digitata*.  
 — 6. *Reniera nivea*. a, et enkelt Exemplar;  
 b, flere Exemplarer sammen paa et tyndt  
 Blad; c, Væggen af et Exemplar, svagt  
 forstørret; d, samme, stærkere forstør-  
 ret; e, en trac Naal; e', en tr<sup>o</sup>ac Naal;  
 e'', to smaa trac Naale fra Overfladen;  
 f, af et Længdesnit af Væggen.

- 7. *Reniera infundibuliformis*.  
 — 8. *Reniera complicata*.  
 — 9. *Reniera simplex*.  
 — 10. *Reniera velamentosa*.  
 — 11. *Reniera membranacea*.  
 — 12. *Reniera tubulosa*.

- Tab. II, Fig. 1. *Reniera dubia*.  
 — 2. *Myxilla exigua*.  
 — 3. *Suberites alveus*.  
 — 4. *Sclerilla arctica*.  
 — 5. *Sclerilla dura*.  
 — 5 A. *Reniera oblonga*.  
 — 6. *Suberites conica*.  
 — 7. *Suberites radians*.  
 — 8. *Rinalda uberrima*.  
 — 9. *Suberites glabra*.  
 — 10. *Suberites incrustans*.  
 — 11. *Desmacidon clavatum*.  
 — 12. *Desmacidon giganteum*.  
 — 13. *Desmacidon giganteum*.

- Tab. III, Fig. 1. *Desmacidon nucleus*.  
 — 1 A. *Myxilla brunnea*.  
 — 2. *Desmacidon arcticum*.  
 — 3. *Esperia bihamatifera*.  
 — 4. do. do.

## Explanation of the plates.

- Pl. I, fig. 1. *Rinalda uberrima*.  
 — 2. *Reniera palescens*.  
 — 3. *Myxilla grisea*.  
 — 4. *Reniera inflata*.  
 — 5. *Reniera digitata*.  
 — 6. *Reniera nivea*. a, A single specimen.  
 b, Several specimens seen together, on  
 a thin leaf. c. The wall of a specimen;  
 slightly magnified. d, The wall of a  
 specimen; considerably magnified. e, A  
 trac spicule. e', A tr<sup>o</sup>ac spicule. e'',  
 Two small trac spicules from the sur-  
 face. f, Aspect of a longitudinal section  
 of the wall.

- 7. *Reniera infundibuliformis*.  
 — 8. *Reniera complicata*.  
 — 9. *Reniera simplex*.  
 — 10. *Reniera velamentosa*.  
 — 11. *Reniera membranacea*.  
 — 12. *Reniera tubulosa*.

- Pl. II, fig. 1. *Reniera dubia*.  
 — 2. *Myxilla exigua*.  
 — 3. *Suberites alveus*.  
 — 4. *Sclerilla arctica*.  
 — 5. *Sclerilla dura*.  
 — 5 A. *Reniera oblonga*.  
 — 6. *Suberites conica*.  
 — 7. *Suberites radians*.  
 — 8. *Rinalda uberrima*.  
 — 9. *Suberites glabra*.  
 — 10. *Suberites incrustans*.  
 — 11. *Desmacidon clavatum*.  
 — 12. *Desmacidon giganteum*.  
 — 13. *Desmacidon giganteum*.

- Pl. III, fig. 1. *Desmacidon nucleus*.  
 — 1 A. *Myxilla brunnea*.  
 — 2. *Desmacidon arcticum*.  
 — 3. *Esperia bihamatifera*.  
 do. do.



Tab. III, Fig. 5. *Esperia bihamatifera*.

— 6. do. do.

— 7. do. do.

Tab. IV, Fig. 1. *Esperia bihamatifera*.

— 2. do. do.

— 3. *Cladorhiza abyssicola*.

— 4. do. do.

— 5. do. do.

— 6. do. do.

— 7. do. do.

— 8. do. do.

— 9. do. do.

— 10. do. do.

— 11. do. do.

— 12. do. do.

— 13. do. do.

— 14. do. do.

— 15. *Pachymatisma Johnstonii*. *a*, To smaa Exemplarer; *b*, af et Snit, Kiselkugleskorpen med deri opragende Naale; *c, c*, to *Mta* ( $\varphi = 90^\circ$ ); *d*, en  $ac^2 sp$ ; *e*, *gl st*; *f*, større *st*; *g*, to *gl* fra det indre af Svampen; *h*, Kiselprismerne, der danner *gl*; *i*, et Stykke af Overfladen af en *gl*.

— 16. *Cladorhiza abyssicola* fra Hardangerfjord, begge Ender af et Anker.

Tab. V, Fig. 1. *Geodia parva*.

— 2. *Clavellomorpha minima*.

— 3. *Tethya cranium*.

— 4. do. do.

— 5. do. do. var. infrequens. *a*, *Mta* ( $\varphi < 90^\circ$ ); *b*, *Mta* ( $\varphi > 90^\circ$ ); *c*, et Embryo; *d*, *Mta* ( $\varphi > 90^\circ$ ) fra Embryonet; *e*, et formodentligt yngre Stadium af den samme Naaleform.

— 6. *Thenea muricata*.

— 7. do. do.

— 8. do. do.

— 9. do. do.

— 10. *Hyalonema arcticum*. *a* og *a'*, to Naale fra Stilken; *b*, Enden af en saadan Naal; *c*, *ha r tr sp*; *d*, *ha r<sup>o</sup> sp*; *e*, *ha* ( $5r + R sp$ ).

Tab. VI, Fig. 1. *Reniera simplex*.

— 2. *Reniera oblonga*.

— 3. *Reniera velamentosa*.

— 4. *Reniera tubulosa*.

— 5. *Myxilla brunnea*.

— 6. *Myxilla flabelliformis*.

— 7. *Reniera dubia*.

— 8. *Reniera complicata*.

Pl. III, fig. 5. *Esperia bihamatifera*.

— 6. do. do.

— 7. do. do.

Pl. IV, fig. 1. *Esperia bihamatifera*.

— 2. do. do.

— 3. *Cladorhiza abyssicola*.

— 4. do. do.

— 5. do. do.

— 6. do. do.

— 7. do. do.

— 8. do. do.

— 9. do. do.

— 10. do. do.

— 11. do. do.

— 12. do. do.

— 13. do. do.

— 14. do. do.

— 15. *Pachymatisma Johnstonii*. *a*, Two small specimens. *b*, Aspect of a section; the siliceous spherical crust with the projecting spicules. *c, c*, Two *Mta* ( $\varphi = 90^\circ$ ) spicules. *d*, An  $ac^2 sp$  spicule. *e*, A *gl st* spicule. *f*, A large *st* spicule. *g*, Two *gl* spicules from the interior of the sponge. *h*, The siliceous prisms forming the *gl* spicules. *i*, A portion of the surface of a *gl* spicule.

— 16. *Cladorhiza abyssicola*, from the Hardanger fjord. Both extremities of an anchor.

Pl. V, fig. 1. *Geodia parva*.

— 2. *Clavellomorpha minima*.

— 3. *Tethya cranium*.

— 4. do. do.

— 5. do. do. Var. infrequens. *a*, A *Mta* ( $\varphi < 90^\circ$ ) spicule. *b*, A *Mta* ( $\varphi > 90^\circ$ ) spicule. *c*, An embryo. *d*, A *Mta* ( $\varphi > 90^\circ$ ) spicule on the embryo. *e*, A, presumably, earlier stage of development of the same spicular form.

— 6. *Thenea muricata*.

— 7. do. do.

— 8. do. do.

— 9. do. do.

— 10. *Hyalonema arcticum*. *a* and *a'*, Two spicules from the stem. *b*, The extremity of such a spicule. *c*, A *ha r tr sp* spicule. *d*, *ha r<sup>o</sup> sp* spicule. *e*, A *ha* ( $5r + R sp$ ) spicule.

Pl. VI, fig. 1. *Reniera simplex*.

— 2. *Reniera oblonga*.

— 3. *Reniera velamentosa*.

— 4. *Reniera tubulosa*.

— 5. *Myxilla brunnea*.

— 6. *Myxilla flabelliformis*.

— 7. *Reniera dubia*.

— 8. *Reniera complicata*.



- Tab. VI, Fig. 9. *Myxilla grisea*.  
 — 10. *Rinalda uberrima*.  
 — 11. *Reniera infundibuliformis*.  
 — 12. *Reniera membranacea*.  
 — 13. *Suberites incrustans*.  
 — 14. *Sclerilla arctica*.  
 — 15. *Sclerilla dura*.  
 — 16. *Desmacidon arcticum*.  
 — 17. *Desmacidon nucleus*.  
 — 18. *Rinalda uberrima*.

- Tab. VII, Fig. 1. *Esperia bihamatifera*.  
 — 2. do. do.  
 — 3. do. do.  
 — 4. do. do.  
 — 5. do. do.  
 — 6. *Thecophora semisuberites*. *a, b, c*, Overgangsformer fra *Th. elongata*, Marenz, til *Th. semisuberites d, e*; *f*, *Th. ibla*, W. Thomson.  
 — 7. *Cladorhiza abyssicola*.  
 — 8. *Desmacidon giganteum*.  
 — 9. *Cladorhiza abyssicola*.  
 — 10. do. do.  
 — 11. do. do.  
 — 12. do. do.  
 — 13. do. do.  
 — 14. *Esperia bihamatifera*.  
 — 15. do. do.  
 — 16. *Tethya cranium*.  
 — 17. do. do. var. infrequens, Gjenemsnit.  
 — 18. *Tethya cranium* var. infrequens, et Stykke af Overfladen.  
 — 19. *Thenia muricata*.  
 — 20. *Hyalonema arcticum*.  
 — 21. do. do.

Indleveret 23. Septbr. 1884.

- Pl. VI, fig. 9. *Myxilla grisea*.  
 — 10. *Rinalda uberrima*.  
 — 11. *Reniera infundibuliformis*.  
 — 12. *Reniera membranacea*.  
 — 13. *Suberites incrustans*.  
 — 14. *Sclerilla arctica*.  
 — 15. *Sclerilla dura*.  
 — 16. *Desmacidon arcticum*.  
 — 17. *Desmacidon nucleus*.  
 — 18. *Rinalda uberrima*.

- Pl. VII, fig. 1. *Esperia bihamatifera*.  
 — 2. do. do.  
 — 3. do. do.  
 — 4. do. do.  
 — 5. do. do.  
 — 6. *Thecophora semisuberites. a, b, c, d, e*, Transition-forms from *Th. elongata*, Marenz. *f*, *Th. ibla*, W. Thomson.  
 — 7. *Cladorhiza abyssicola*.  
 — 8. *Desmacidon giganteum*.  
 — 9. *Cladorhiza abyssicola*.  
 — 10. do. do.  
 — 11. do. do.  
 — 12. do. do.  
 — 13. do. do.  
 — 14. *Esperia bihamatifera*.  
 — 15. do. do.  
 — 16. *Tethya cranium*.  
 — 17. do. do. Var. infrequens; sectional aspect.  
 — 18. *Tethya cranium* Var. infrequens. Aspect of a portion of the surface.  
 — 19. *Thenia muricata*.  
 — 20. *Hyalonema arcticum*.  
 — 21. do. do.

Received 23<sup>rd</sup> September 1884.



**Zoologiske Stationer.**  
(Zoological Stations).

Station No.	Datum. (Date).	Nordlig Bredde. (North Latitude).	Længde fra Greenwich. (Longitude).	Dybde. (Depth).		Bundens Temperatur. (Temperature at Bottom). C.	Bunden.	Bottom.	Apparat. (Apparatus). S. Skrabe. (Dredge). T. Trawl. s. Svabere. (Swabs).
				Engl. Favne. (Fathoms).	Meter. (Metres).				
1876									
1	Juni 3	61° 13'	6° 36' E.	650	1189	6.06	Sandler.	Sabulous Clay.	S.
2	(June) 3	61 10	6 32 E.	672	1229	6.7	Sandler.	Sabulous Clay.	T.
4	" 8	61 5	5 14 E.	566	1035	6.6	Sandler, Grus, Singel.	Sabulous Clay, Pebbles.	T.
8	" 9	61 0	4 49 E.	200	366	6.6	Ler, Sand, Sten.	Clay, Sand, Stones.	S.
9	" 20	61 30	3 37 E.	206	377	5.9	Ler.	Clay.	T.
10	" 21	61 41	3 19 E.	220	402	6.0	Slik, Ler.	Ooze, Clay.	T.
18	" 21	62 44	1 48 E.	412	753	—1.0	Ler.	Clay.	S. T.
23	" 23	62 52	5 50 E.						T.
25	" 28	63 10	5 25 E.	98	179	6.9	Sandler.	Sabulous Clay.	T. S.
26	" 28	63 10	5 16 E.	237	433	7.1	Sandler.	Sabulous Clay.	S.
31	" 29	63 10	5 0 E.	417	763	—1.0	Sandler.	Sabulous Clay.	S. T.
33	" 30	63 5	3 0 E.	525	960	—1.1	Ler.	Clay.	T. S.
34	Juli 1	63 5	0 53 E.	587	1073	—1.0	Ler.	Clay.	T.
35	(July) 5	63 17	1 27 W.	1081	1977	—1.0	Biloculinler.	Biloculina Clay.	S.
40	" 18	63 22	5 29 W.	1215	2222	—1.2	Biloculinler.	Biloculina Clay.	S. T.
48	Aug. 6	64 36	10 22 W.	299	547	—0.3	Mørkgraat Ler.	Dark-grey Clay.	s.
51	" 7	65 53	7 18 W.	1163	2127	—1.1	Biloculinler.	Biloculina Clay.	S.
52	" 8	65 47	3 7 W.	1861	3403	—1.2	Biloculinler.	Biloculina Clay.	T.
53	" 10	65 13	0 33 E.	1539	2814	—1.3	Biloculinler.	Biloculina Clay.	S & T.
54	" 12	64 47	4 24 E.	601	1099	—1.2	Biloculinler.	Biloculina Clay.	S & T.
79	" 21	64 48	6 32 E.	155	283	6.9	Sandler.	Sabulous Clay.	S.
87	" 22	64 2	5 35 E.	498	911	—1.1	Ler.	Clay.	S.
92	" 22	64 0	6 42 E.	178	326	7.2	Sandholdigt Ler.	Sabulous Clay.	T.
93	" 24	62 41	7 8 E.	158	289	6.4	Blød Ler.	Soft Clay.	T.
(Romsdalsfjord).									
1877									
96	Juni 16	66 8	3 0 E.	805	1472	—1.1	Biloculinler.	Biloculina Clay.	S.
101	(June) 17	65 36	8 32 E.	223	408	6.0	Sandler.	Sabulous Clay.	S.
124	" 19	66 41	6 59 E.	350	640	—0.9	Grovkornet Ler.	Coarse Clay.	S. T.
137	" 21	67 24	8 58 E.	452	827	—1.0	Ler.	Clay.	S. T.
147	" 22	66 49	12 8 E.	142	260	6.2	Graat Ler.	Grey Clay.	S.
149	" 23	67 52	13 58 E.	135	247	4.9	Ler.	Clay.	T. S.
(Vestfjord).									
164	" 29	68 21	10 40 E.	457	836	—0.7	Sandler.	Sabulous Clay.	S. T.
175	Juli 2	69 17	14 35 E.	415	759	3.0	Ler, Smaasten.	Clay, Pebbles.	S.
176	(July) 3	69 18	14 33 E.	536	980	—0.2	Ler.	Clay.	S.
177	" 3	69 25	13 49 E.	1443	2639	—1.2	Biloculinler.	Biloculina Clay.	S & T.
183	" 5	69 59	6 15 E.	1710	3127	—1.3	Biloculinler.	Biloculina Clay.	S & T.
190	" 7	69 41	15 51 E.	870	1591	—1.2	Sandholdig Ler.	Sabulous Clay.	T.
192	" 7	69 46	16 15 E.	649	1187	—0.7	Sandler.	Sabulous Clay.	S.
195	" 16	70 55	18 38 E.	107	196	5.1	Sten, Ler.	Stones, Clay.	S.
200	" 17	71 25	15 41 E.	620	1134	—1.0	Ler.	Clay.	S. T.
205	" 18	70 51	13 3 E.	1287	2354	—1.2	Biloculinler.	Biloculina Clay.	S.
213	" 26	70 23	2 30 E.	1760	3219	—1.2	Biloculinler.	Biloculina Clay.	S.
223	Aug. 1	70 54	8 24 W.	70	128	—0.6	Graasort Sandler.	Dark-grey sabulous Clay	S.
(Jan Mayen).									
224	" 1	70 51	8 20 W.	95	174	—0.6	Graasort Sandler.	Dark-grey sabulous Clay	S.
225	" 2	70 58	8 4 W.	195	357	—0.6	Graasort Sandler.	Dark-grey sabulous Clay	S.
237	" 3	70 41	10 10 W.	263	481	—0.3	Brunt Ler, Stene.	Brown Clay, Stones.	S.
240	" 4	69 2	11 26 W.	1004	1836	—1.1	Biloculinler.	Biloculina Clay.	S.
248	" 8	67 56	4 11 E.	778	1423	—1.4	Biloculinler.	Biloculina Clay.	S.
251	" 9	68 6	9 44 E.	634	1159	—1.3	Ler.	Clay.	S.
252	" 11	Vestfjord.					Ler.	Clay.	S.
253	" 15	Skjerstadfjord.		263	481	3.2	Ler.	Clay.	S.



Station No.	Datum. (Date).	Nordlig Bredde. (North Latitude).	Længde fra Greenwich. (Longitude).	Dybde. (Depth).		Bundens Temperatur. (Temperature at Bottom). C.	Bunden.	Bottom.	Apparat. (Apparatus). S. Skrabe. (Dredge). T. Trawl. s. Svabere. (Swabs).
				Engl. Favne. (Fathoms).	Meter. (Metres).				
253b	Aug. 17	Saltstrømmen.		90	165		Sten.	Stones.	S.
	1878.								
255	Juni 19	68° 12'	15° 40' E.	341	624	6.5	Ler.	Clay.	S.
		(Vestfjord).							
257	(June) 21	70 4	23 2 E.	160	293	3.9	Ler.	Clay.	S.
		(Altenfjord).							
258	" 21	70 13	23 3 E.	230	421	4.0	Ler.	Clay.	T.
		(Altenfjord).							
260	" 24	70 55	26 11 E.	127	232	3.5	Ler.	Clay.	S. T.
		(Porsangerfjord).							
261	" 25	70 47	28 30 E.	127	232	2.8	Ler.	Clay.	S. T.
		(Tanafjord).							
262	" 27	70 36	32 35 E.	148	271	1.9	Ler.	Clay.	T. S.
267	" 29	71 42	37 1 E.	148	271	—1.4	Ler, Sten.	Clay, Stones.	S.
270	" 30	72 27	35 1 E.	136	249	—0.0	Ler.	Clay.	S.
273	Juli 1	73 25	31 30 E.	197	360	2.2	Ler.	Clay.	S.
275	(July) 2	74 8	31 12 E.	147	269	—0.4	Ler.	Clay.	T.
280	" 4	74 10	18 51 E.	35	64	1.1	Sten.	Stones.	S.
		(Beeren Eiland).							
283	" 5	73 47	14 21 E.	767	1403	—1.4	Ler.	Clay.	S.
286	" 6	72 57	14 32 E.	447	817	—0.8	Ler.	Clay.	T.
290	" 7	72 27	20 51 E.	191	349	3.5	Sandler.	Sabulous Clay.	T.
295	" 14	71 59	11 40 E.	1110	2030	—1.3	Biloculinler.	Biloculina Clay.	T.
297	" 16	72 36	5 12 E.	1280	2341	—1.4	Biloculinler.	Biloculina Clay.	T.
303	" 19	75 12	3 2 E.	1200	2195	—1.6	Biloculinler.	Biloculina Clay.	T.
312	" 22	74 54	14 53 E.	658	1203	—1.2	Ler.	Clay.	T.
315	" 22	74 53	15 55 E.	180	329	2.5	Ler, Sand.	Clay, Sand.	T.
322	" 23	74 57	19 52 E.	21	38	0.2	Haard.	Hard.	S.
323	" 30	72 53	21 51 E.	223	408	1.5	Ler.	Clay.	T.
326	Aug. 3	75 31	17 50 E.	123	225	1.6	Ler.	Clay.	T.
333	" 4	76 6	13 10 E.	748	1368	—1.3	Biloculinler.	Biloculina Clay.	T.
336	" 5	76 19	15 42 E.	70	128	0.4	Ler, Haard B.	Clay, Hard Bottom.	S.
338	" 6	76 19	18 1 E.	146	267	—1.1	Haard.	Hard.	S.
343	" 7	76 34	12 51 E.	743	1359	—1.2	Ler.	Clay.	T.
350	" 8	76 26	0 29 W.	1686	3083	—1.5	Biloculinler.	Biloculina Clay.	T.
353	" 10	77 58	5 10 E.	1333	2438	—1.4	Biloculinler.	Biloculina Clay.	T.
357	" 12	78 3	11 18 E.	125	229	1.9	Ler.	Clay.	S.
359	" 12	78 2	9 25 E.	416	761	0.8	Ler.	Clay.	S.
362	" 14	79 59	5 40 E.	459	839	—1.0	Ler.	Clay.	T.
363	" 14	80 3	8 28 E.	260	475	1.1	Ler.	Clay.	T.
366	" 17	79 35	11 17 E.	61	112	—2.1	Ler.	Clay.	T.
"		Magdalena Bay.		37	68	—0.2	Ler.	Clay.	T.
370	" 18	78 48	8 37 E.	109	199	1.1	Ler.	Clay.	T.
372	" 19	78 9	14 7 E.	129	236	1.2	Ler.	Clay.	T.
		(Isfjord).							
374	" 22	78 16	15 33 E.	60	110	0.7	Ler.	Clay.	T.
		(Advent Bay).							







P L A N C H E R.

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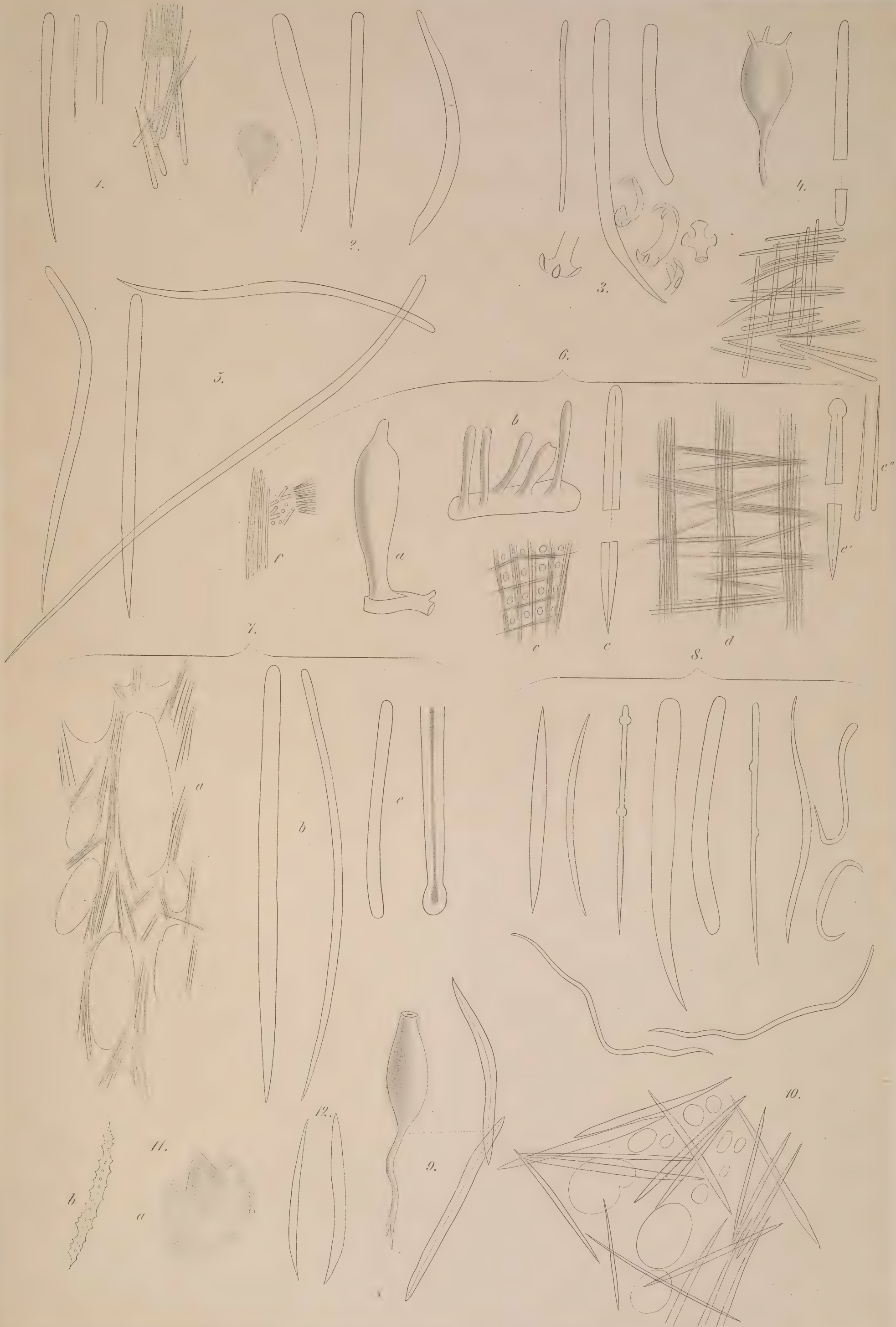
P L A T E S.

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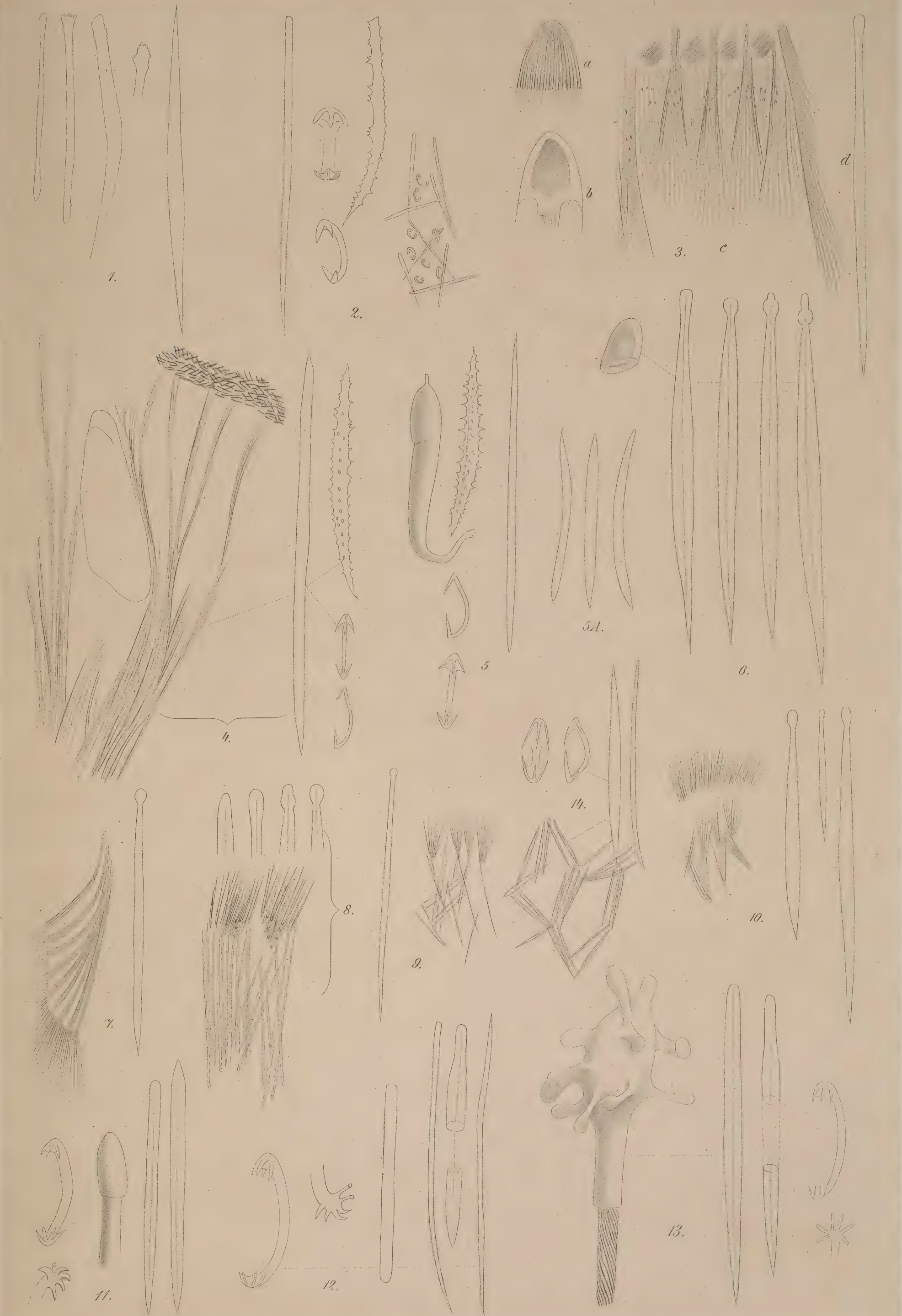








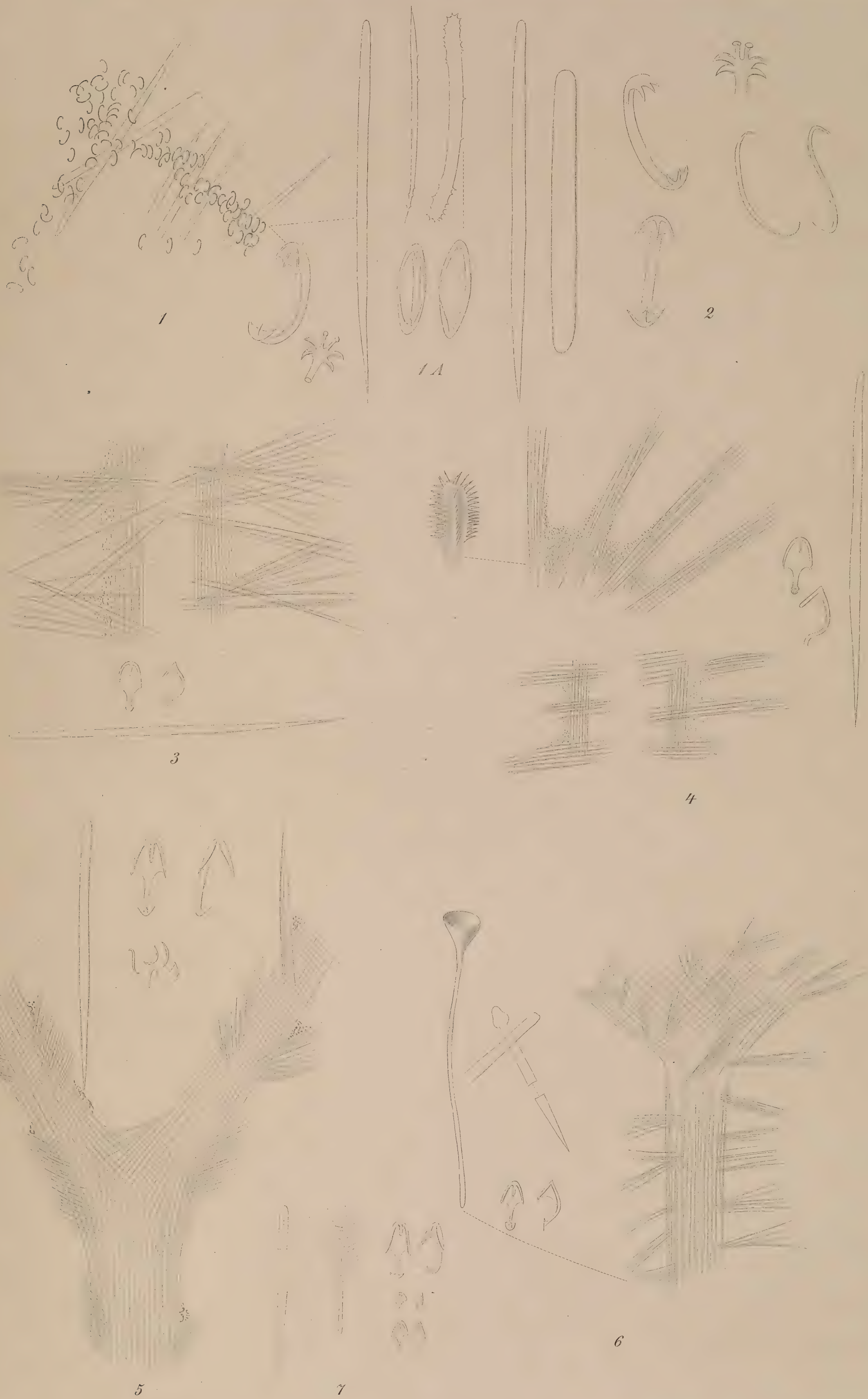








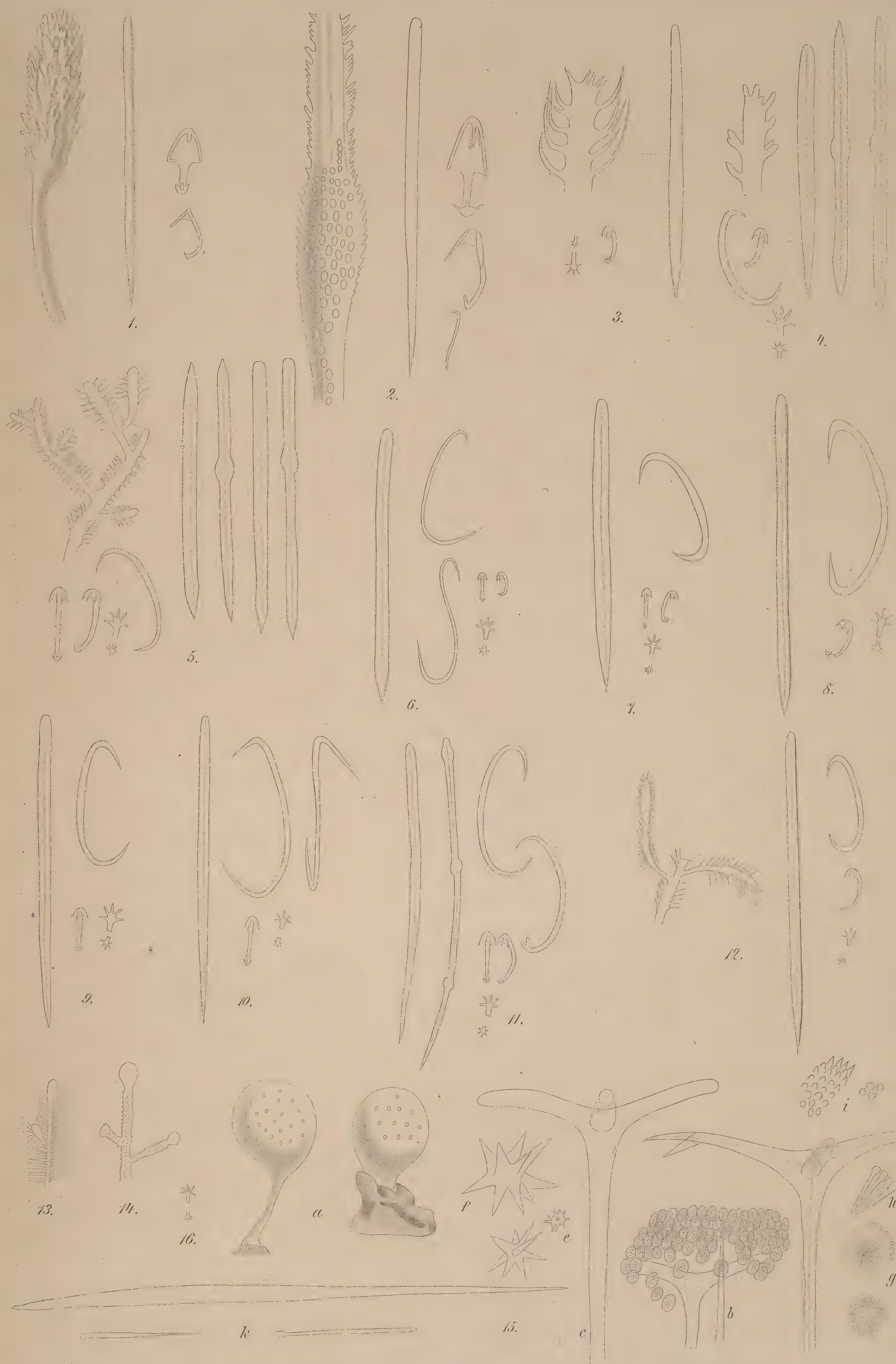








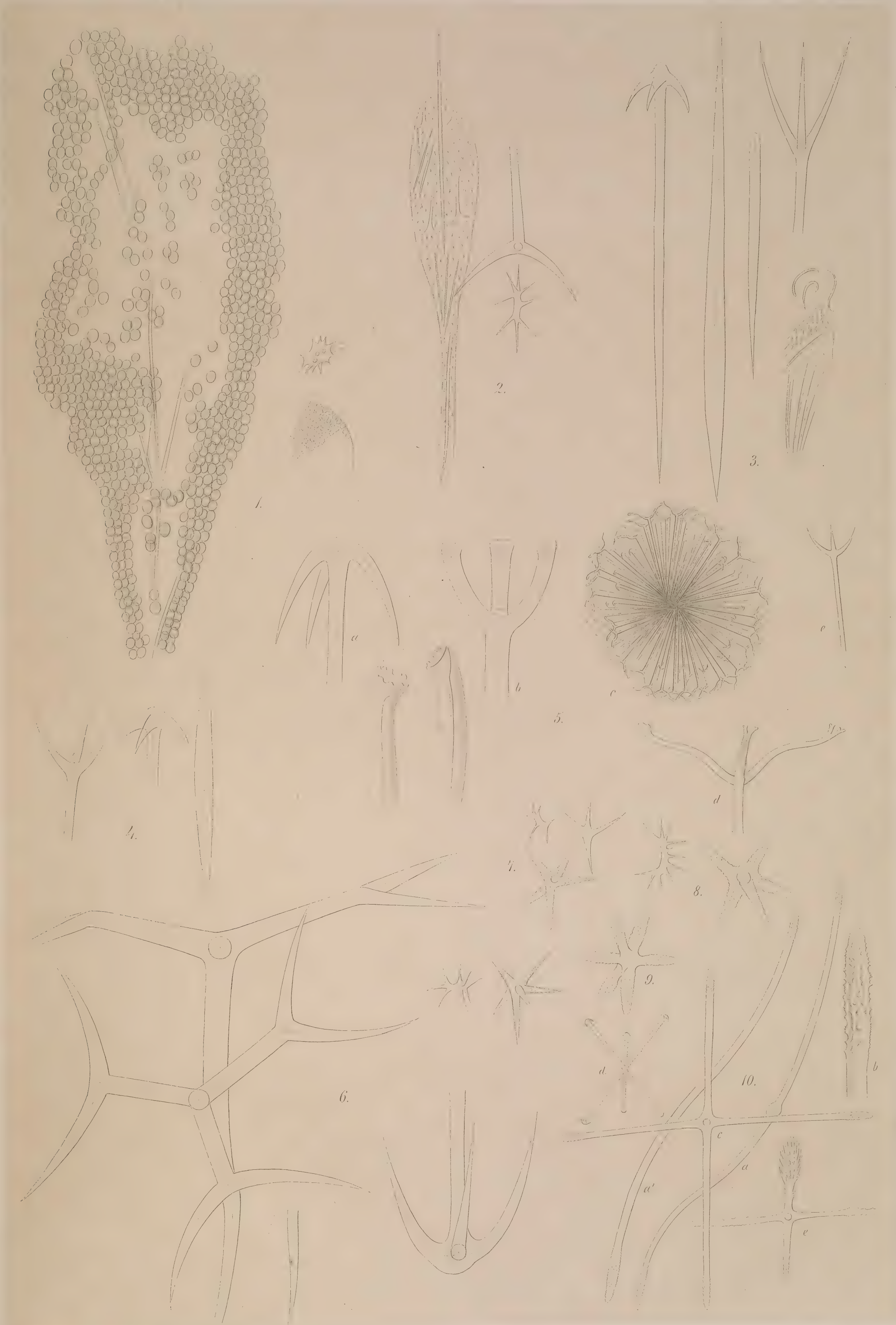
















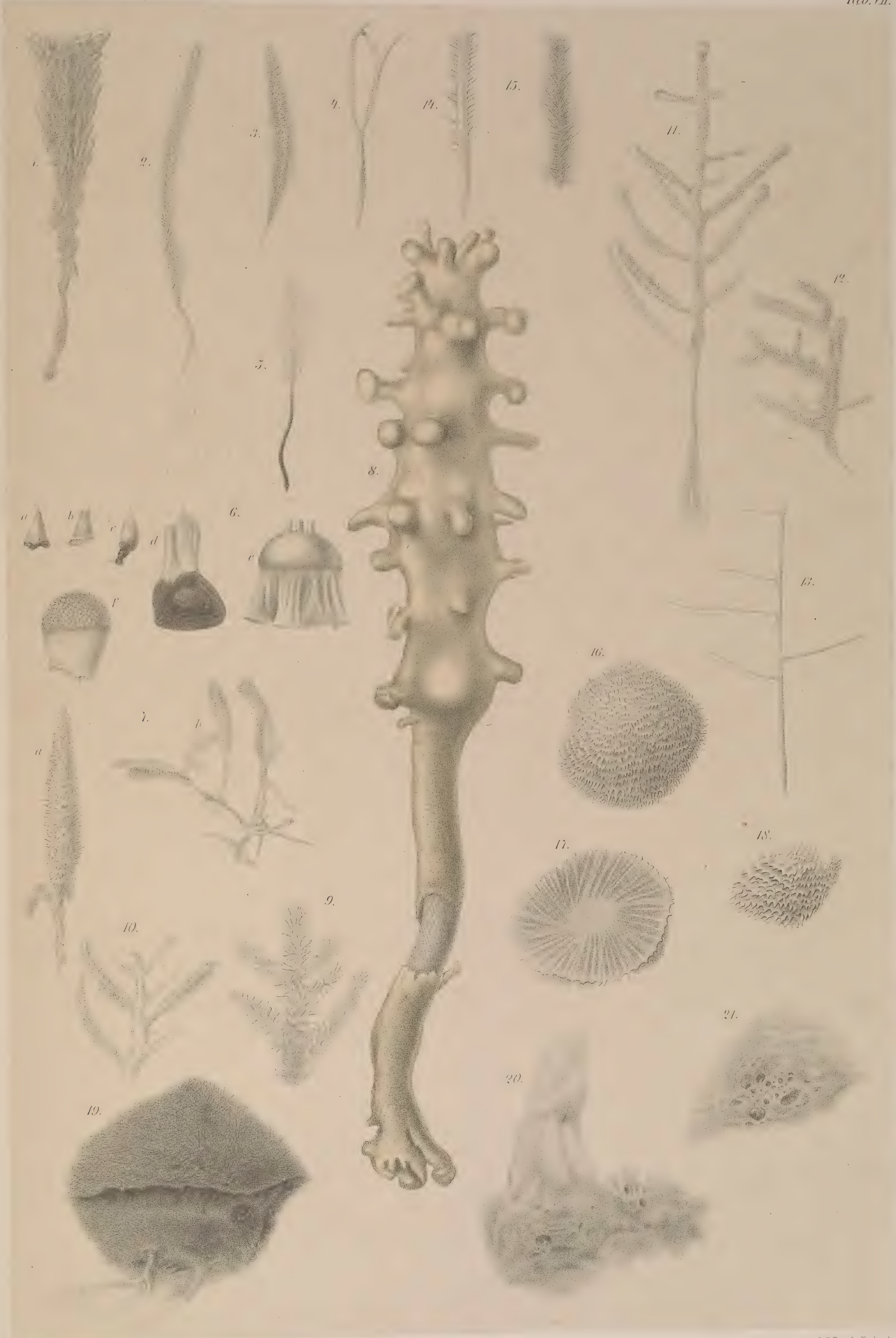








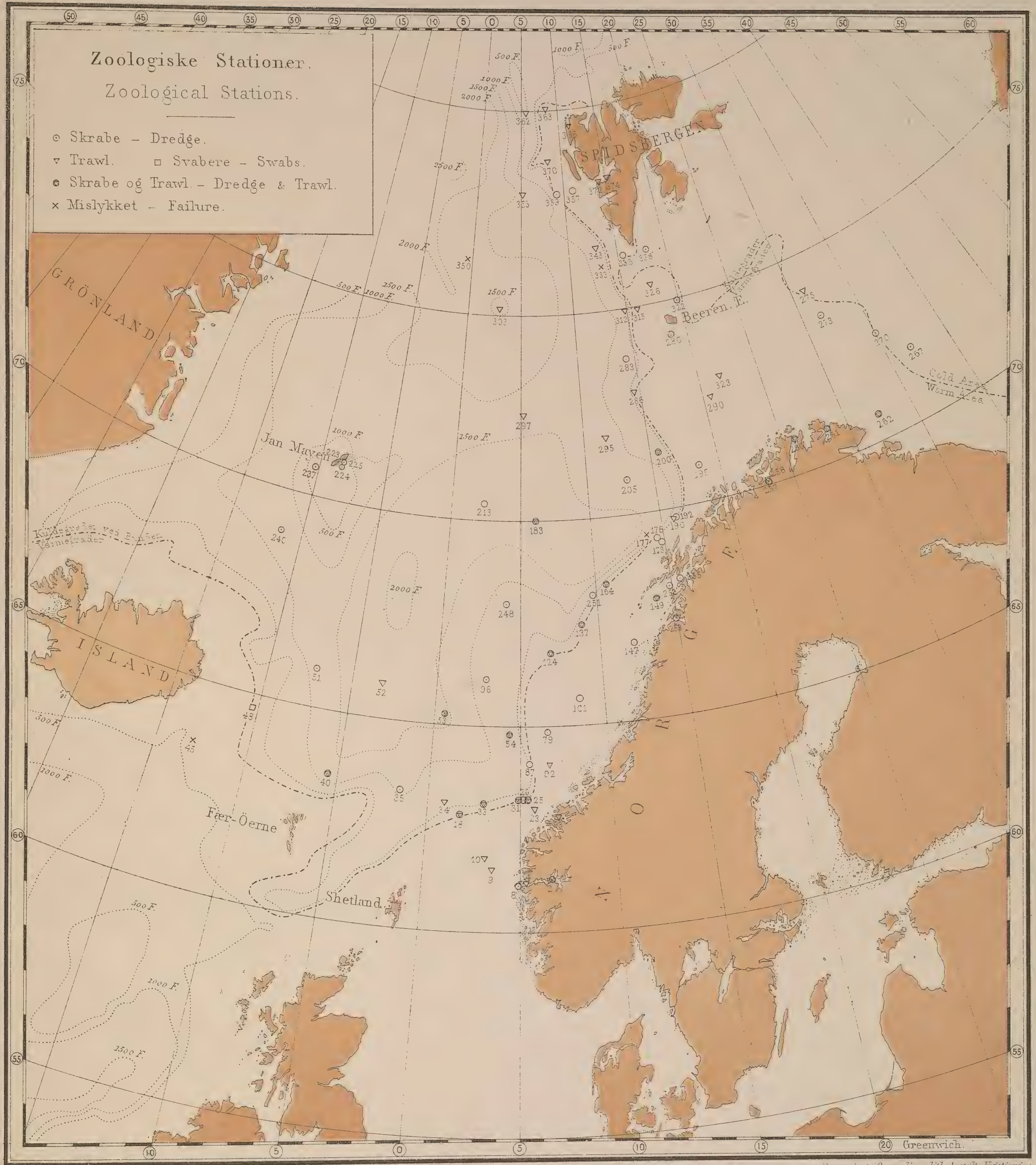














































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